THE BUILDER

Incorporating

ARCHITECTURE & THE BRITISH ARCHITECT

THE BUILDER HOUSE, CATHERINE STREET, ALDWYCH, LONDON, W.C.2. Telephones : Temple Bar 6251-2-3-4

VOL. CLXXXI SEPTEMBER 21, 1951 No. 5666

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THIS WEEK'S NEWS

PROFESSOR BUDDEN is to retire from the post of Roscoe Professor of Architecture, Liverpool University, next summer. Applications for the post are now invited. *p.* 373

A MAINTENANCE ALLOWANCE made by some local authorities of £15 to £20 per annum for their new houses was described by Mr. H. C. Hampton as more realistic, when he spoke at the annual conference of the Institute of Housing on September 21. *p.*389

UNEMPLOYMENT during 1950 *remained at a low level, and the number of registered unemployed persons never exceeded* 1.8 *per cent. of total employees, states the annual report for* 1950 *of the Ministry of Labour and National Service.* *p.* 394

COMPETITIVE TENDERING

OUR recent leading articles on this subject have stimulated a good deal of correspondence which, though it has shown a high degree of concern about the largely unregulated conditions of price competition in the building industry, has revealed no marked display of enthusiasm for the methods adopted by the London Builders' Conference to bring safeguards into competitive tendering. This controversy, as our readers will recall, has arisen out of the recent reaffirmation by the Royal Institute of British Architects of its strong disapproval (originally expressed in 1939) of the methods of the Conference in regard to price-fixing arrangements. The R.I.B.A. deprecated particularly the procedure which has the effect of adding an amount to the contract price for which the building owner receives no visible or tangible return, and it recommended its members to ask firms invited to tender for work to sign a form of declaration to the effect that they were not parties to any scheme or arrangement such as that of the London Builders' Conference. As our correspondence has also made it clear that the National Federation of Building Trades Employers is, and always has been, entirely unconnected with this scheme, the Conference would appear to be virtually friendless.

There are two principal forms of competition: (*a*) That based on efficient organisation and management, and (*b*) that based on price-cutting plus the hope of a profit out of poor work, variations and extras. The first, which is generally found in association with old or well-established firms, is surely to be encouraged; the second, which is the characteristic of the financial organisation without roots in the industry, is unhealthy, not only because it means unsatisfactory work but because it tends to drive out the good firms, just as bad money drives out good—those firms who by their integrity, high standards, indenturing of apprentices and other beneficial activities form the backbone and sustenance of the industry; if they were to be driven out of business by unfair competition the outlook for the industry and the country would be parlous indeed.

Obviously matters cannot be allowed to remain where they are, and our object in returning to this subject is briefly to re-examine the situation and to see whether or not the controversy has produced any useful suggestions for the reform of the competitive system. Little direct support has been forthcoming for the Conference method, which in our view does little or nothing to prevent undercutting, for the reason that the amount added to the lowest price goes not to the successful tenderer but to the Conference coffers to provide a fund to cover running costs and compensation to unsuccessful tenderers. A further defect of the Conference method is that it provides no guarantee that all tenders will be genuinely competitive; indeed, it would appear to be possible for some members never to submit a successful tender within the Conference and yet to benefit financially from membership. On the other hand, there would appear to be nothing to prevent the putting in of a cut price by a firm if for one reason or another it particularly wanted the job. Finally, the fact that members of the Conference are relieved, by the share-out arrangement, of some part of their overheads gives them an unfair advantage in competing with non-Conference firms for work outside the Conference. Even if the Conference method were successful it would benefit presumably only a comparatively small, if powerful, section of the industry, leaving the problem as it affects the industry as a whole untouched.

It must be confessed that no startlingly new suggestions for overcoming the largely self-created difficulties of the industry have emerged from this correspondence, though it would appear that some benefit has been found to ensue where architects have followed the R.I.B.A. recommendation that they should (*a*) advise their clients of the advantages of limiting invitations to tender to a reasonable number, and (*b*) classify contractors according to standards of workmanship and general standing in the industry, and invite only those in the same class to tender for a job suitable to that particular class. As the Simon Committee on the Placing and Management of Building Contracts declared: "There is only one definite guarantee of a good job, a competent and honest builder who has obtained a contract at a fair price," and to this end they recommended that "competitive tenders should in all cases be called from a limited number of firms carefully selected as being capable of and likely to do work of the standard required." If this excellent advice were generally followed it could hardly fail to drive out the unscrupulous price-cutter in tendering for private work, though official work which is put out to open tender admittedly provides a more perplexing problem.

Some correspondents have complained of the practice of appointing specialists and nominating sub-contractors without consultation with the main contractor, and one suggested that it would be better to hold over such appointments until the main contract has been placed, when the successful contractor

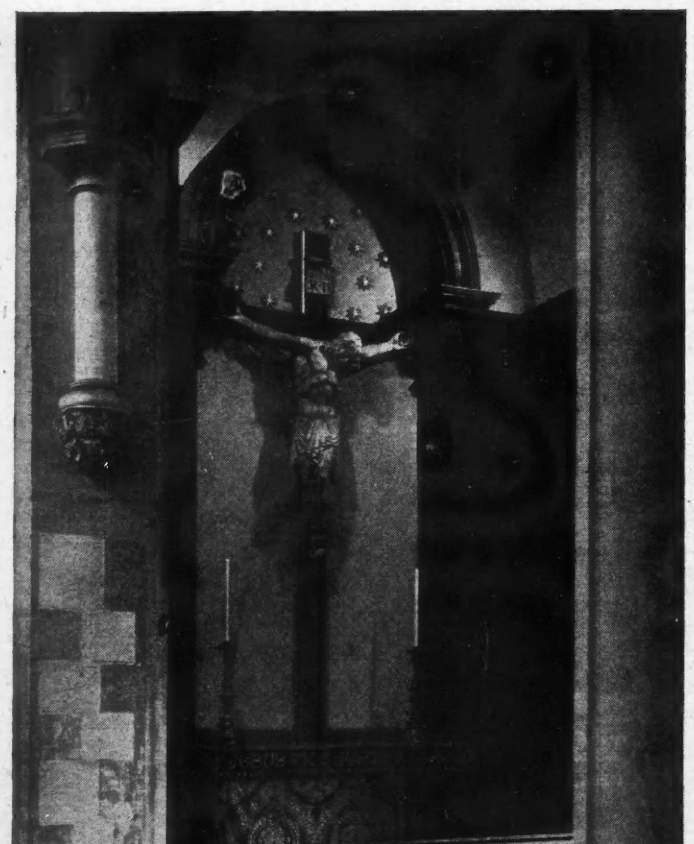
should be allowed to decide with the architect on the specialists to be employed. The cost and waste of unsuccessful tendering, particularly when a large number of firms are competing for a contract, was a point stressed by another correspondent who suggested that if this problem is to be dealt with on a co-operative basis it would be better for builders not to adopt the method of the London Builders' Conference but to form a central fund into which contractors would pay in proportion to the size of contract obtained to cover the general cost of tendering and from which regular share-outs could be made. Another correspondent, a contractor who had worked for many years solely on a fee basis, claimed advantages for "the partnership of owner, architect, engineer, quantity surveyor, specialist sub-contractor and builder." In a letter which we publish this week a correspondent attributes the hazards of present-day tendering in part to the "flood of half-trained young men" operating as estimators, which is something that can be cured only by better technical training and practical experience. "Before the war," added the same writer, "the Conference made it possible for every estimator and executive to ignore to a very great extent the hazard of serious non-technical errors and pure technical accident. . . ."

Though our correspondents have put their fingers on many of the defects in the competitive system of obtaining and carrying through building contracts, none has condemned it out of hand nor succeeded in finding an alternative to it. Fairly and efficiently operated, it is a healthy system; unfairly and inefficiently, the reverse. That it is capable of improvement is obvious. The method of the London Builders' Conference is not in our view, and that of many others, an acceptable solution of the problem. Is there one to be found? We suggest that a conference of all the parties concerned might well be held (behind closed doors if necessary) to explore the possibilities.

EXHIBITIONS AT THE R.I.B.A.

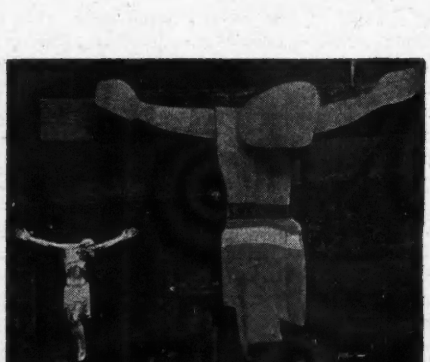
IT is surely time that the Royal Institute of British Architects reviewed its policy of not showing competition drawings at Portland-place. This policy, adopted by the Council, we believe, as a protection against a surfeit of requests which might interfere with the Exhibition Committee's own programme, is likely to defeat what must surely be one of the Institute's major aims—to bring the public into contact with architecture, and in particular to identify current architectural work with the R.I.B.A. The display of competition drawings relating to projects which appeal to public interest can do this very successfully. Our own low-cost housing competition, decided in the Spring of this year, drew in six days 4,000 people to London County Hall; the five principal designs for Coventry Cathedral have attracted over 5,000 persons to the Building Centre in ten days. Both these competitions should have been shown on their own merits in the R.I.B.A. building, and only Institute policy prevented this from being done.

The R.I.B.A. Council should reconsider the position. To maintain consistency of policy is admirable until that policy ceases to be consistent with the aim and needs of the profession and the public the Institute serves.



A MEMORIAL SHRINE

The sculpture for the memorial shrine, St. Matthew's Church, Great Peter-street, Westminster, which has been executed by Mr. Allan Howes. The material is laminated lime wood, and the stars are also in wood, gilded. The background is blue, graduated from light to dark. The size of the figure is over life. The rough wood of the sculpture before carving is shown below.



NOTES & NEWS

A.A. SYMPOSIUM

THE SUCCESS of the Architectural Association's Symposium on Hospital Planning, held in December, 1950, has encouraged the council to organise a second symposium to be held at the A.A. on November 14, this time on the subject of "The Design and Planning of Colleges for Further Education."

The meeting will again last for one day, from 9.30 a.m. until 6 p.m., and will consist of a morning and afternoon session, during which both architects and educationists will speak on various aspects of the subject and take part in discussions.

As accommodation is strictly limited, members are urged to make early application for places, and those wishing to bring non-member guests specially interested in the subject are asked to submit their names at the same time. The fee for members and their guests will again be one guinea each.

TOWN AND COUNTRY PLANNING

THE Students Planning Group of the Town and Country Planning Association has arranged a varied programme of autumn activities. On September 27 "Houses in the Town," a film dealing with housing layout, will be shown and explanations will be given by Professor W. G. Holford, Mr. Frederick Gibberd and Mr. Robert Matthew. On October 6 a visit will be paid to Hemel Hempstead New Town; on November 8, Mr. Arthur Ling, Senior Planning Officer to the L.C.C., will speak on "The Future of London"; on November 15, Sir George Pepler will speak on "The Future of Planners"; and further talks will be given by Mr. R. Furneaux Jordan, Sir Malcolm Trustram Eve, and other speakers.

THE ROSCOE CHAIR

THE COUNCIL of the University of Liverpool invites applications for the Roscoe Chair of Architecture. Further particulars may be obtained from the Registrar, Mr. Stanley Dumbell, by whom 12 copies of applications (one in the case of overseas candidates) should be received not later than November 17, next.

DUNOON PAVILION

THE DESIGN of Mr. N. R. J. Johnston, D.A.(Glas.), A.R.I.B.A., A.M.T.P.I., of Messrs. Boswell Mitchell and Johnston, 256, West George-street, Glasgow, C.2, has been placed first by the assessor (Mr. A. Graham Henderson, P.R.I.B.A.) in the competition for a pavilion at Dunoon for the Town Council. The competition was limited to six invited firms.

ACE WORKMEN

ON a building site in the East End of London one morning recently a foreman employed by a large contractor saw four of his men playing cards. He went up to them and sacked them all on the spot.

One of the men, a burly figure, tapped the foreman on the chest and said, "You can't do that to us."

"Why not?" said the foreman.

"We weren't playing for money," replied the man.

PROFESSIONAL ANNOUNCEMENT

MR. L. D. BENTLEY, A.R.I.C.S., chartered quantity surveyor, announces that he is now in practice at 6, Queen Anne's-gate, Westminster, S.W.1. (Tel.: Whitehall 9359.)

COMING EVENTS

MONDAY, SEPTEMBER 24

CEMENT AND CONCRETE ASSOCIATION.—Opening of two-day symposium on "Prestressed Concrete Statically Indeterminate Structures." Institution of Civil Engineers, Great George-street, S.W.1. 10.30 a.m.

TUESDAY, SEPTEMBER 25

INSTITUTE OF REGISTERED ARCHITECTS.—Opening of exhibition on "The Architect and the Community." North Finchley Library. Continuing until October 6.

L.M.B.A. (SOUTHERN AREA).—"County Contract Work," by Mr. J. Harrison, A.R.I.B.A., Surrey County Architect, Cafe Royal, North End, Croydon. Luncheon 1 p.m.

HOUSING CENTRE.—The reconstruction of Rotterdam will be discussed by building officials from that city. 13, Suffolk-street, Haymarket, S.W.1. 5.30 p.m. (Seats cannot be guaranteed unless reserved before the event.)

WEDNESDAY, SEPTEMBER 26

L.M.B.A. (SOUTH WESTERN AREA).—Presentation of Sidney Gaze Memorial Fund Prizes by Mr. D. E. Woodbine Parish, F.I.O.B. Zeeta's Restaurant, Kingston-upon-Thames. 12.45.

NATIONAL SMOKE ABATEMENT SOCIETY.—Opening of 18th annual conference. Winter Gardens, Blackpool. 11 a.m. Continuing until September 28.

THURSDAY, SEPTEMBER 27

TOWN AND COUNTRY PLANNING ASSOCIATION STUDENTS PLANNING GROUP.—Film, "Houses in the Town," with explanations by Professor W. G. Holford, Mr. Frederick Gibberd, and Mr. Robert Matthew. 20, King-street, Covent Garden, W.C.2. 6.15 p.m.

BUILDING ALLIANCE GOLFING SOCIETY.—Autumn meeting when *The Builder* Trophy will be played for. Berkshire Golf Club.

FRIDAY, SEPTEMBER 28

EASTERN FEDERATION OF BUILDING TRADE EMPLOYERS.—Official opening by Mr. Douglas Calverley, M.I.O.B., of the Prototype Low Cost Houses at Elmcroft-road, Ipswich. 12 noon.

FROM "THE BUILDER" OF 1851

Saturday, September 20, 1851

SCHOOL FOR WORKMEN.—Will you be good enough to remind your readers that I first published my proposal for founding a School of Art for artist workmen, with a view to their improvement both mentally and manually, and through this of art generally, in your Journal of March 29 of the present year . . . I have addressed many members of the architectural profession, who have, but with one single exception, warmly and entirely approved of the plan, and which they have sanctioned by their offered subscriptions towards a fund I propose to raise for the purpose . . . I think they should be the first to found such a school, not only because they are more interested than any other men in improving the workman and his work—they employing so many—but also because architecture is the first and foundation of all the other arts, and should take precedence of them all.

[From an article signed C. B. Allen.]

THE ROSCOE CHAIR OF ARCHITECTURE, LIVERPOOL

Impending Retirement of Professor Lionel Budden

THE appearance of an advertisement inviting applications for the Roscoe Chair of Architecture at Liverpool University must cause many architects throughout the world to realise, with regret, that Professor Lionel Budden is about to retire.

For 45 years he has been associated with the School of Architecture, as student, lecturer, associate-professor and professor, and in this long time he has undoubtedly left upon it the indelible stamp of his personality and ideals. During these years the School, which he has helped to make, has grown considerably in numbers and stature, and at every stage his balanced judgments and logical approach to architectural problems have provided a secure foundation for its growth and development.

As it grew he was largely responsible for organising the courses which attracted students from every country, and Professor Reilly, in his autobiography, describes him at this period as his "better half." His special qualities as a designer, and a philosopher with deep and reasoned knowledge of the fundamentals of architecture, fitted him perfectly to be a leader in the field of architectural education, and the expansion and development of the teaching of architecture in this country has responded to the impetus of his example and precept.

The Liverpool School has been particularly fortunate to have a man with these qualities at its head during recent years, when the Art of Architecture must more and more be allied to advancing scientific and technical knowledge.

It could not have been easy to occupy the chair vacated by Sir Charles Reilly in 1933, and to maintain the great prestige of the School during the years of war and readjustment which have followed. That Lionel Budden has been able to do this with distinction, and to reorganise and expand the work of the School, is a tribute to his exceptional abilities in many directions. The Polish School of Architecture which was established with such success at Liverpool during the war, is another achievement of which the Professor may be justly proud.

Students owe a great deal to his clear, precise, analytical but essentially human criticisms, and it is not a little due to Budden's influence and encouragement that the Liverpool School has produced many outstanding modern architects whose work combines the adventure of contemporary building with true appreciation of æsthetic values. His own buildings, in which a highly-developed sense of "fitness for purpose" is expressed in sensitive design, show his ability as a practical architect.

It is clearly impossible, in so brief a note as this, to pay full tribute to a man's life work. Past students, friends and colleagues everywhere will join in hoping that the last year of Professor Budden's work at the University will be a happy one and that he will look forward to retirement next summer with the satisfaction one may rightly feel from having done an excellent job.

A. G. SHEPPARD FIDLER,
M.A., B.Arch., F.R.I.B.A., A.M.T.P.I.

CORRESPONDENCE

LONDON BUILDERS' CONFERENCE

To the Editor of *The Builder*

SIR,—After your publication of my previous letter (August 24) which arose out of your original article on the London Builders' Conference, I would ask for the opportunity to use a little more of your space, because I do so heartily agree with the second part of the letter written by Mr. J. H. Parfitt, in your issue of September 14, dealing with the delay in the settlement of final accounts.

Further, I do feel that this talk of " price rings " is getting out of all proportion, and I know I am speaking for the majority of building contractors—and I consider also for the majority of the architects and surveyors—when I say that there is not a price ring operating in the building industry for the overwhelming majority of the work that is carried out. There are price rings in every industry, but I am sure this is completely foreign to the London Builders' Conference, and any practice that does exist would exist with or without the Conference, and it is my opinion that these allegations are no more related to the Conference than they are related to any other body, and in any case are so infinitesimal as not to be worthy of further consideration.

I consider I am typical of many within our industry who are always working for greater efficiency within our own organisations and for better work at more economical cost. I think the public at large would be amazed to see the tremendous advancement that is being made within the organisation of many contractors who to-day can claim to be operating on a very efficient basis. Unfortunately this efficiency cannot be always fully employed because of the difficulties of licences and other matters which are due to the policy of this Government, but I feel that Mr. Parfitt has hit on one factor, that of the delay in the settlement of contractors' accounts, which probably exercises a more adverse effect on efficiency than is realised, and yet is something which could be cured so easily.

If the R.I.B.A. and the Surveyors and the Contractors were to get together and give their time to settling this problem, together with other problems, such as long delayed results and acceptances of tenders, it is my opinion that they would be doing far more good than chasing the microscopical hare of the price ring, which in any case, as I have said, will always exist in some infinitesimal degree.

W. GORDON LILLY.

Orchard Works,
St. Ann's-street, S.W.1.

To the Editor of *The Builder*

SIR,—Many old and established estimators and surveyors in building contractors' offices must have read your leading articles and the resultant correspondence regarding the London Builders' Conference with tremendous interest, and I would contend that after study it is very probable that a consensus of the opinion of these estimators, and probably of the directors of building firms as well, would give as a first and foremost reason for the continued existence of the Conference the fact that it assists a very great deal towards maintaining a high standard of competition. The manner in which this is achieved is somewhat hidden and would probably only appeal to estimators and surveyors of long standing and considerable experience.

Few would not agree that the preparation of a tender gives rise to considerable anxiety in a contractor's office and much more so when the size of the contract approaches the limit of the firm's capacity. The anxiety is caused because of the presence of various hazards which are all supposed to be regularly taken into account, but which for the most part have to be dealt with in the most optimistic frame of mind in present-day competition.

The estimator in the first place is most anxious that he has given every contingency proper examination and made a reasonable assessment. The working-up staff hope and sometimes pray that mathematical errors are so small as to be of no great moment. The directors are invariably hoping that a proper appraisal of the style and standard of requirement has been made and that the final figure offered by the estimator is a fair and reasonable assessment of the cost of all the factors involved. This then is the atmosphere surrounding the selection of the final figure, and it must be agreed by all sensible people that if the contractor is seriously interested in obtaining the work in order to maintain business, the three most important and clearly defined factors to be taken into account are :—

(1) The possibility of various errors.

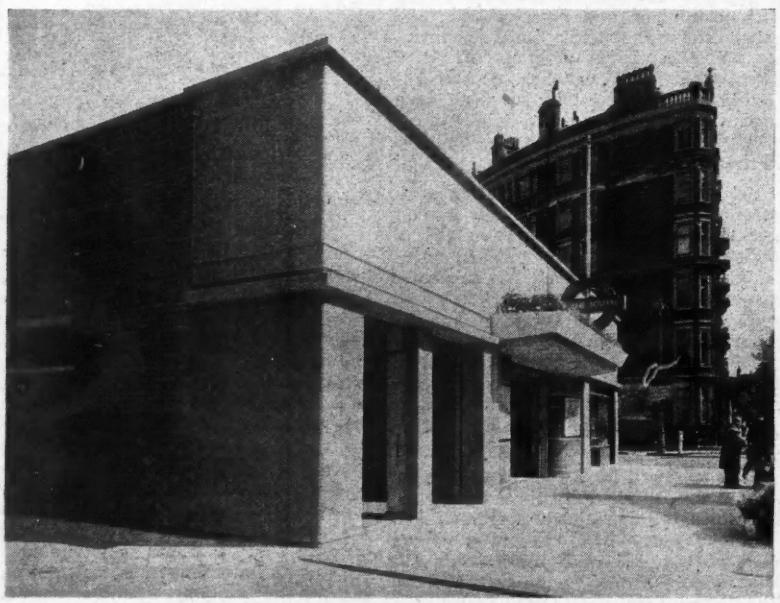
(2) The probable effect of unforeseen contingencies arising during the currency of the contract.

(3) The probable profit which may be expected.

The first is an anxiety which in the past (pre-Conference) used to remain with the whole of the interested members of the firm until the results were known and the die cast for better or for worse, and as the proportion of bankruptcy in the building trade was at one time second only to that in the grocery business it would appear as if this was undoubtedly sometimes for the worse. The second is assessed according to the pessimism or optimism expressed by the leader writers in the daily and periodical Press, and also with the help of the flood of literature which appears to be the present order of the day. The third is purely domestic politics and is by far the most simple figure to arrive at.

Before the war the Conference made it possible for every estimator and executive to ignore to a very great extent the hazard of serious non-technical errors and pure technical accident, which had hitherto attended the last minute rushes to complete the tender by the appropriate date. Since the war this relief has not been afforded because the process adopted pre-war is not now generally followed, and I would contend that very few fully qualified estimators and surveyors in contractors' offices would not agree that this is highly regrettable.

Remembering the flood of half-trained young men who are at present operating



An exterior view of London Transport's recently reconstructed Sloane-square station, the opening of which was made to coincide with that of the Festival of Britain. The original buildings were reconstructed early in the war, but were completely destroyed in November, 1940, by a direct bomb hit, after which a temporary structure was erected. The works were carried out to the design of Mr. T. R. Bilbow, F.R.I.B.A., Architect to London Transport Executive, under the general supervision of the Chief Engineer, Mr. P. Croom-Johnson, C.B.E.

in the industry under the impression that they are first-class fully qualified estimators, it would appear that the time when a greater rather than a lesser degree of assistance towards ensuring a "fair price" has arrived.

Finally, it is regretted that certain elements continue to contend that it is a very reasonable thing to expect the contractor to "stew in his own juice" when errors in estimating are made. If this condition has been brought about by one "theoretical" individual making a series of blunders of sufficient magnitude to do serious injury to a well-established firm of repute, it must be something to be deplored by all reasonable people and not something to be acclaimed in any way.

C. A. RANCE, A.I.O.B.

17, Norrington-road,
Loose, Nr. Maidstone, Kent.

To the Editor of *The Builder*

SIR,—Earlier in the correspondence aroused by your leading article concerning the London Builders' Conference I deprecated the tendency which early became apparent in some of the letters you received to drag into an issue, which is really one of tendering procedure, extraneous matters such as the limitation or otherwise of the practice of nominating sub-contractors. I asked that sub-contractors might be allowed to stand aside from this fight and my organisation has refrained from offering further observations, though we could have had much to say on some contentions which have been advanced. I cannot but regret that Mr. Rowlands, in his letter in your issue of September 7, did not avoid this subject which is after all a blind alley so far as this particular correspondence is concerned: but I realise of course, that he may well have felt he had no option.

I cannot but feel still that it is undesirable that the issue should be widened to embrace aspects of sub-contracting practice and certainly that this organisation, as representing sub-contractors, should get entangled in a correspondence concerning the London Builders' Conference with which our members have no concern. May I therefore merely reiterate that it was the views of this federation also that the Simon Committee and the Working Party endorsed in their classification of building operations and in their approval of competition among specialists. We are quite ready to accept in general that sub-contracts should only be placed by architects without competition in a small number of cases where artistic qualities or special technical skill in design and erection are in question; and that in other cases architects should not nominate without having invited competitive tenders from a number of firms. It is not, however, our concern to press for the enlargement of the scope of work for which the general contractor should customarily be asked to tender. To go further into this subject would, however, merely divert attention from the matter under discussion, that is to say the principles underlying the existence and practice of the London Builders' Conference, an issue upon which we would be pleased to be allowed to remain neutral.

D. C. MALLAM,

Director, Federation of Associations of Specialists and Sub-contractors.

Artillery House,
Artillery-row, S.W.1.

APPRENTICESHIP IN THE BUILDING INDUSTRY

To the Editor of *The Builder*

SIR,—Although the remarks made by "Onlooker" in your issue of September 14 will have been read with interest by all who have this problem at heart, the suggestion that no time be lost in bringing home to parents and boys alike the opportunities offered by the building industry for a full, useful and rewarding career rather implies that little is being done at the moment to recruit building apprentices.

For many years now—since 1934 in fact—the National Federation of Building Trades Employers has kept the recruitment of apprentices in the forefront of its activities. Were it not for the steady work that has been done throughout these years by the National Federation and the Local and Regional Joint Apprenticeship Committees up and down the country the apprenticeship figures would be far more serious than they are to-day. Indeed, since the inception in 1945 of the industry's Joint Apprenticeship Scheme, to which you made generous reference in your leading article of September 7, a much greater proportion of apprentices have been properly indentured, and the figures issued by the Ministry of Works show that the number is constantly increasing.

It may be of interest to your readers that active steps to encourage building apprenticeship are being taken by this federation at the forthcoming Building Exhibition which opens at Olympia in November next. Not only will a large part of the National Federation's stand be devoted to a message to parents and potential apprentices emphasising the advantages of a recognised training in the skilled building crafts, but large parties of apprentices from all parts of the country will be visiting the exhibition free of charge under arrangements made by the N.F.B.T.E., with the generous support of the exhibition authorities. It is hoped that this will serve a useful purpose in that the apprentices will return to their home towns and talk about what they have seen and learned at the exhibition and so interest their friends and relatives of similar age in a career in the building industry.

In addition, the National Federation, through Mr. Woodbine Parish, is collaborating with other bodies and the exhibition authorities in the presentation of another feature at the exhibition which will include a number of apprentices in the various trades carrying out practical work on the bench. Visitors will thus be able to see the kind of training and supervision apprentices undergo and the care that is taken to instil the basic principles of craftsmanship and pride in the job.

These are some of the more immediate instances of the National Federation's work in this field, but its Education and Training Committee has the general subject constantly under review and is ever ready to consider any suggestion or course of action which will ensure an adequate flow of skilled craftsmen in the years to come.

WILLIAM D. BRYANT,
Public Relations and Press Officer, National Federation of Building Trades Employers.

82, New Cavendish-street,
W.1.

To the Editor of *The Builder*

SIR,—The executive council of this association, at a recent meeting, discussed with interest and appreciation your editorial of September 7 regarding apprenticeship in the building industry. They support entirely your views, and would mention that some two years ago the association made representation to the Ministry of Works, the views put forward being almost word for word those contained in the editorial's penultimate paragraph.

We have great sympathy with the views you outline, and trust that the article achieves greater success than we have been able to obtain, as we consider the views expressed are the only solution to overcome the dearth of apprentices.

F. J. TAYLOR,
Secretary, London Master Plasterers' Association.

St. Stephen's House,
Westminster, S.W.1.

To the Editor of *The Builder*

SIR,—I agree with "Onlooker" (*The Builder*, September 14) that the task of telling parents the advantages of their boys entering the building trade is not an easy one. A mechanic of 40 years standing, I myself could not tell them the meaning of "generous bonus payments." Still I consider it a good career and agree with the other advantages given in his letter, for in the national interest it is essential we have a fair share of the labour force.

So why have the bottleneck of apprenticeship? I agree that a boy should start at a trade in early 'teens and spend four years continuously at a trade of his choice. A boy should be able to get a careers card from the Ministry of Labour, knowing and agreeing that it will be used as a register for four years. The builders would have to agree that after the first year a boy would be kept continuously at the trade of his choice, and on no heavy work in the first year. To those in the trade who have paid more than lip service to the encouragement of apprenticeship I apologise for this letter. But I cannot see any other way to do our duty to other industries.

WALLINGTON.

KUMASI CENTRAL HOSPITAL AND NURSES' TRAINING CENTRE, ASHANTI, GOLD COAST

A. G. PATON, AIAA, PUBLIC WORKS DEPARTMENT, RESIDENT ARCHITECT

J. P. LOMAX, MA (ARCH), ARIBA, ASSOCIATE ARCHITECT
H. H. CLARK, FRIBA, CONSULTANT ARCHITECT

THE provision of a Central Hospital for Ashanti is one of the several major projects scheduled for construction in the Gold Coast within the present decade. Kumasi, the capital of Ashanti, is to house at least two of these projects, the Central Hospital and Nurses' Training Centre and the Central Mental Hospital. The contract for the former project will be let very shortly.

The design of these projects is the responsibility of the Gold Coast Public Works Department who have now adopted the policy of augmenting their architectural staff by engaging, on short-term contracts, architects with specialised experience of the particular project for which they are engaged.

In the case of the Central Hospital and Nurses' Training Centre, A. F. D. Seale, A.R.I.B.A., Chief Architect, Public Works Department, arranged the appointment of A. G. Paton, A.I.A.A., as Resident Architect, Public Works Department, responsible for the design of the project, J. P. Lomax, M.A. (Arch.), A.R.I.B.A., as Associate Architect, Public Works Department, and H. H. Clark, F.R.I.B.A., as Consulting Architect. The illustrations show the final design as approved by Dr. J. G. S. Turner, the Director of Medical Services. The sketch designs and working drawings have been prepared by the architects at Accra, under the direction of D. W. McCulloch, Director of Public Works, and with the assistance of African members of the Public Works Department, Architects' Branch. The model was constructed by N. D. V. Parkins, the Public Works Department's model-maker.

FINANCIAL CONSIDERATIONS

A grant of £1,000,000 from the Colonial Development Fund was available for the completion of the project; of this sum the medical department reserved a fixed sum for medical equipment and furnishing; the cost of the site, being upon Crown Lands, was not a charge against the project and the architect was therefore able to plan to a definite sum for all building work, roads, services and general equipment.

No hard and fast schedule of accommodation was laid down by the medical department and the final provisions were discussed and agreed at meetings between the architect and the director of medical services at which the various medical and surgical specialists were present; by this means it was possible to obtain specialists' opinions upon alternative plan details before the design had passed beyond the rough-sketch stages.

In general the problem was to replace the existing outmoded and inadequate hospital service at Kumasi with an up-to-date teaching hospital of not less than 500 beds, with specialist services not normally possible to provide in the smaller outlying hospitals; increased out-patient capacity up to 500 persons per day; and teaching and living accommodation for not less than 330 nurses-in-training, including midwifery training.

Segregation on racial or religious grounds was not considered to be of importance, and no provision was considered necessary for separate kitchens to serve patients of varying races. It was decided that ward units should be identical in plan to permit of re-allocation for differing types of nursing as required.

SITE

The selected site occupies 41 acres upon an eminence 975 ft. above sea level at a fairly central location within the town limits; at present a main road runs through the site with the existing north and south wing hospitals occupying the land upon either side.

Under the town planning provisions now being put into effect, this road becomes redundant and is closed; the maintenance of the existing hospital service, however, calls for careful progressing of the construction of the new hospital, this being another factor affecting the overall planning.

The site is very evenly covered with many large and beautiful trees; a coarse but pleasant grass grows abundantly and lawns can be maintained without difficulty. Wherever possible the natural growths will be preserved. A considerable area adjacent at the north and east is occupied by a golf course which will be preserved as a permanent open space; at the south and west an open space will be created.

It is not practical to design a 500-bed general hospital as a group of single storey buildings in view of the area of site covered and the length of communications; the adoption of a multi-storey form was decided upon at the outset, and bearing in mind the necessity to preserve uninterrupted breeze to all ward and patients' units, whilst conforming to the obviously correct east to west orientation of buildings, the main ward blocks were planned *en echelon* as will be seen in the illustrations.

GENERAL PLAN FORM

It was considered essential that the out-patients' department entrance should be very near to the main gates in order to lessen the disturbance to ward patients by the noise which is always a feature of such a department; for this reason the O.P. block runs northwards from the main hospital entrance with east to west wings arranged to present a face to the prevailing breeze; the O.P. corridor is completely open thus permitting the breeze to pass freely through to all wings.

The administration offices are situated above the O.P. block immediately adjacent to the main hospital entrance; on two floors above are housed the septic labour and nursery units each immediately adjacent to its corresponding maternity ward. The surgical unit with its two pairs of operating theatres is centrally situated to the north of the ward blocks, and since the whole unit is fully air-conditioned, the breeze factor may be discounted in this case.

The main kitchen and laundry block is situated to the north of the surgical block and due to the falls of the site is one storey lower but sufficiently removed from the main building to gain benefit from the breeze. The post mortem, garage and powerhouse blocks are grouped at the extreme north of the site, this forming an enclosed service yard; the latter building provides steam to kitchen, laundry and surgical unit and incorporates a stand-by generator for maintenance of certain essential services in the hospital in the event of a mains breakdown.

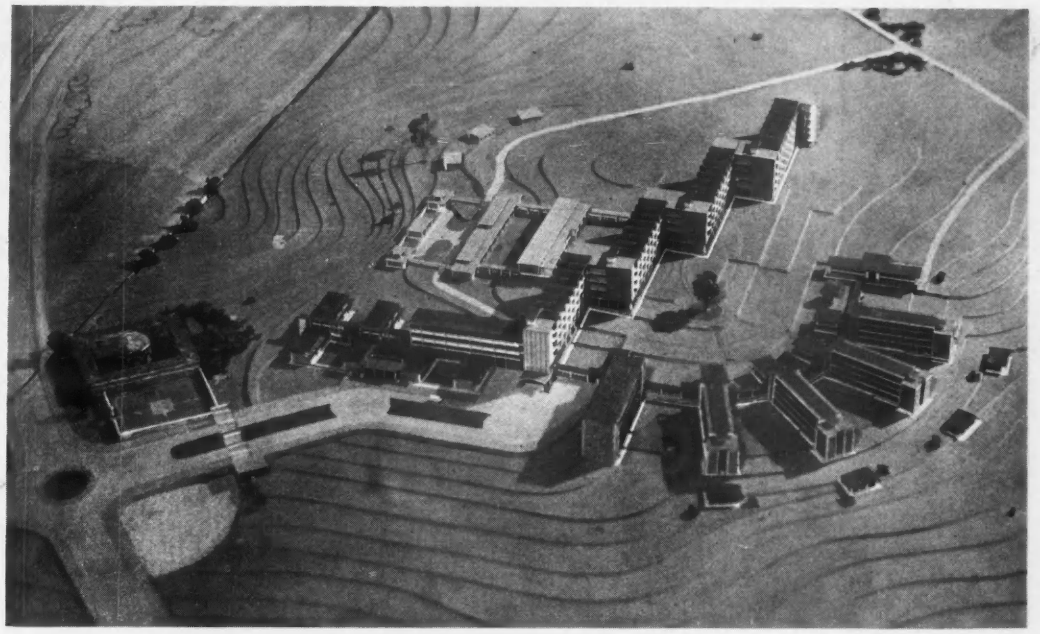
The Nurses' Training Centre is treated as a separate entity approached from the main hospital by a covered way; it comprises a teaching block, four dormitory blocks and a self-contained kitchen and dining block. In order to provide a compact composition, whilst reducing the possibility of impeding the breeze to the main hospital, the blocks are arranged radially and linked by a covered way.

The incorporation of verandas to dormitory blocks at each floor provides shade to the rooms despite the varying orientation of the individual blocks. Housekeeper's quarters are provided adjacent to each dormitory block from which position a reasonable measure of supervision is possible at all hours.

CIRCULATION

Study of the circulation diagrams will show that in this hospital use has been made of the falls of the site to obtain separation of utility services—food, linen, laundry and stores—from the normal administration and patients traffic; visitors and out-patients are similarly separated. This is achieved by the provision of horizontal access ways on two levels, the lower level serving food, laundry and stores to all floors via service lifts. The upper level has two access ways: (1) for nursing staff and in-patients access from wards to surgical unit and specialist department via the passenger and bed lifts at each ward block; (2) for visitors to in-patients and for out-patients visiting specialist departments. It should be noted that the out-patients' department is not normally in operation during visiting hours.

Thus it will be seen that circulation between the various units all takes place horizontally, at lower ground floor level for utility services and at upper ground floor for patients and staff; access to ward units is afforded by vertical circulation only and, except in an emergency, there is no inter-communication from ward block to ward block horizontally; by this means adequate segregation of sexes and types of nursing is achieved; by the same token patients' visitors are prevented to some extent from unauthorised wandering from ward to ward. Each ward unit is self-contained, and entry is controlled at the vertical access end.



Photograph of a model of Kumasi Central Hospital and Nurses' Training Centre.

Food and laundry service is effected by means of lifts serving direct to the ward units. The teaching unit of the Nurses' Training Centre is situated nearest the main hospital entrance and a large assembly hall with stage facilities is situated at its lower floor; the teaching administration offices are on the upper floor with library adjacent and the practical demonstration and lecture rooms are arranged in three storeys above. The dormitory and dining blocks are reached by means of an open covered way at lower ground floor level only; each dormitory has a common-room at upper floor level and separate ablution blocks serve each dormitory floor.

Vehicular traffic is segregated; goods vehicles arrive via the service road from the north-east, staff and visitors' cars and ambulances approach via the Bantama-road main gates, the ambulance has access via the casualty bay to the service yard, garage block and post mortem block and from thence if necessary may leave via the service road to the north-east.

UTILITY SERVICES

The existing public services of water supply and electricity are being increased in output to serve this new project. The proposed water-borne sewage disposal scheme to be provided for Kumasi is not expected to mature in time to serve the new hospital and therefore provision is being made for a separate disposal system which can later be by-passed and superseded by the main disposal works.

The services of Mr. W. V. Zinn, A.M.I.C.E., have been obtained in connection with the design of the reinforced concrete frame and floors. Adequate local supplies of sand, crushed stone aggregate and a lightweight timber (with negligible shrinkage) are available and since local labour is well acquainted with the execution of reinforced concrete structures it has been decided that this method offers the most economical and practical solution.

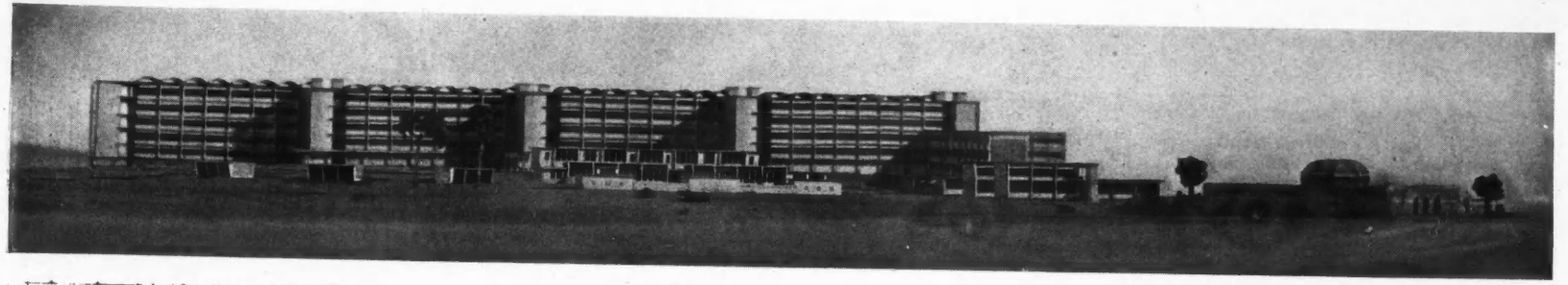
The whole plan is based upon a simple 15 ft. by 20 ft. grid layout and the architect's intention is to express the R.C. framework in the finished appearance, this being the logical and honest result of the repetitive plan form and its mode of construction. The problem of disposal of surface water from the roofs of the multi-storey blocks led to the adoption of vertical open fronted rain-water channels constructed as part of the columns; rain-water pipes of normal sizes would not cope with the torrential downpours which occur. These channels impart a pronounced vertical feeling to the whole composition.

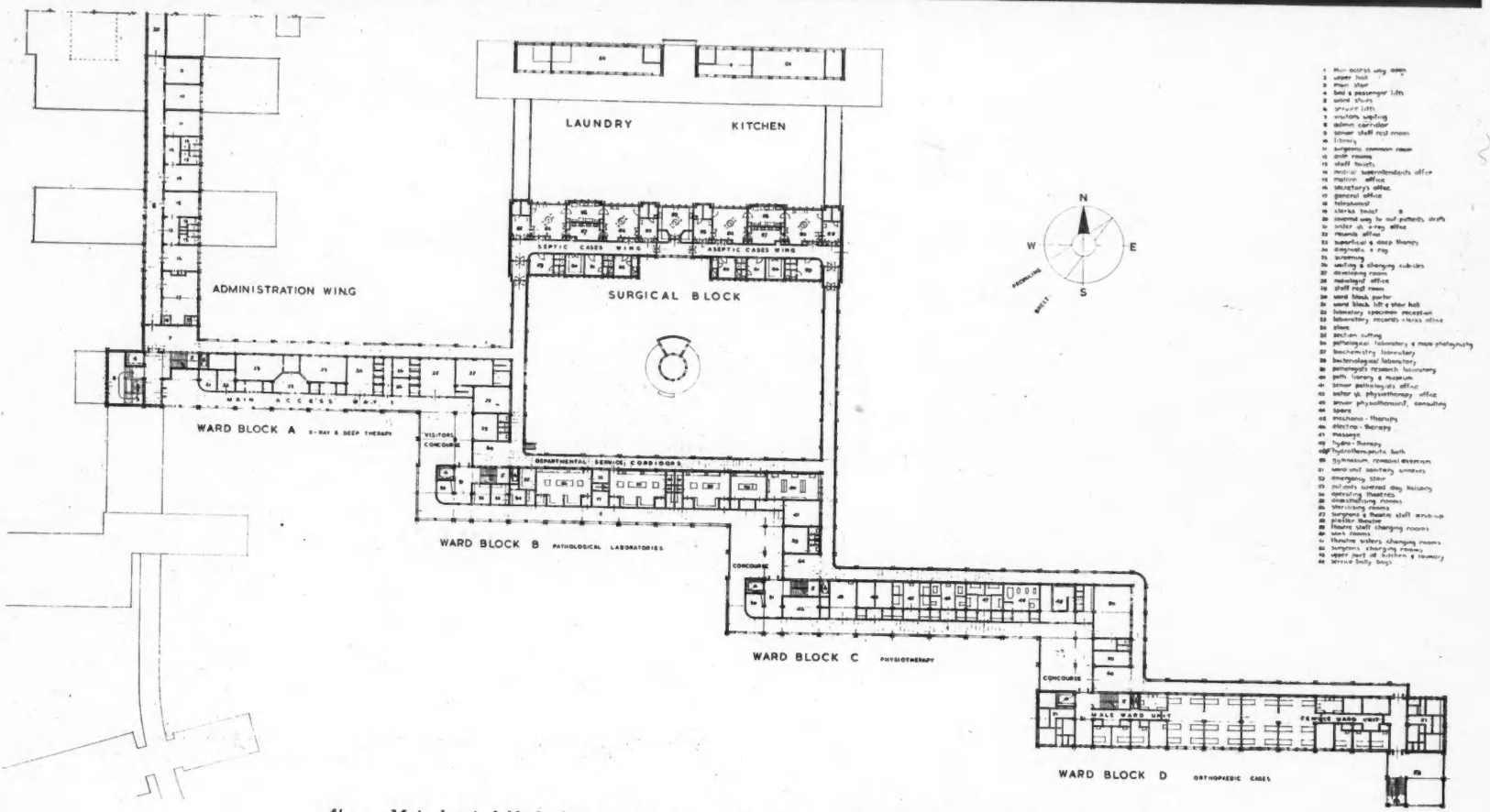
The flat roofs, generally, are of solid construction with the addition of lightweight precast concrete tiles loose-laid to provide a few inches of air-space for the purpose of dissipating the heat produced by direct sun rays: the roofs over the ward units are of double construction, the upper roof taking the form of barrel vaults. Floors throughout are of solid construction with sound-insulating materials incorporated in the finishes; ward floors will be of cork or similar resilient materials which are at present under consideration. Wall finishes, internally, will be enamel paint upon plaster for most rooms; flush finishing granolithic coved skirtings will apply throughout.

Doors will be of the solid-core laminated flush type hung in metal frames. Externally the framework will be clad between columns with precast concrete panels. In some cases these will incorporate moulded designs based upon authentic examples of Ashanti decoration; these, together with large areas of local stone walling and the use of external colouring will assist in imparting some of the local building tradition to a building which by its very nature and scale would otherwise be alien to the locality.

BUILDING PROGRAMME

Construction will proceed in two definite stages; the first stage involves the vacation and demolition of the existing north wing hospital buildings, and the construction of the new out-patients' block, two ward blocks, the surgical unit and service buildings. When complete, the south wing patients will transfer to the new portion of the hospital leaving the remainder of the site clear for the completion of the project. This is the largest single building project ever to have been undertaken in the Gold Coast.





Above: Main hospital block elevations (from a model). Below: Upper-ground-floor plan, main hospital.

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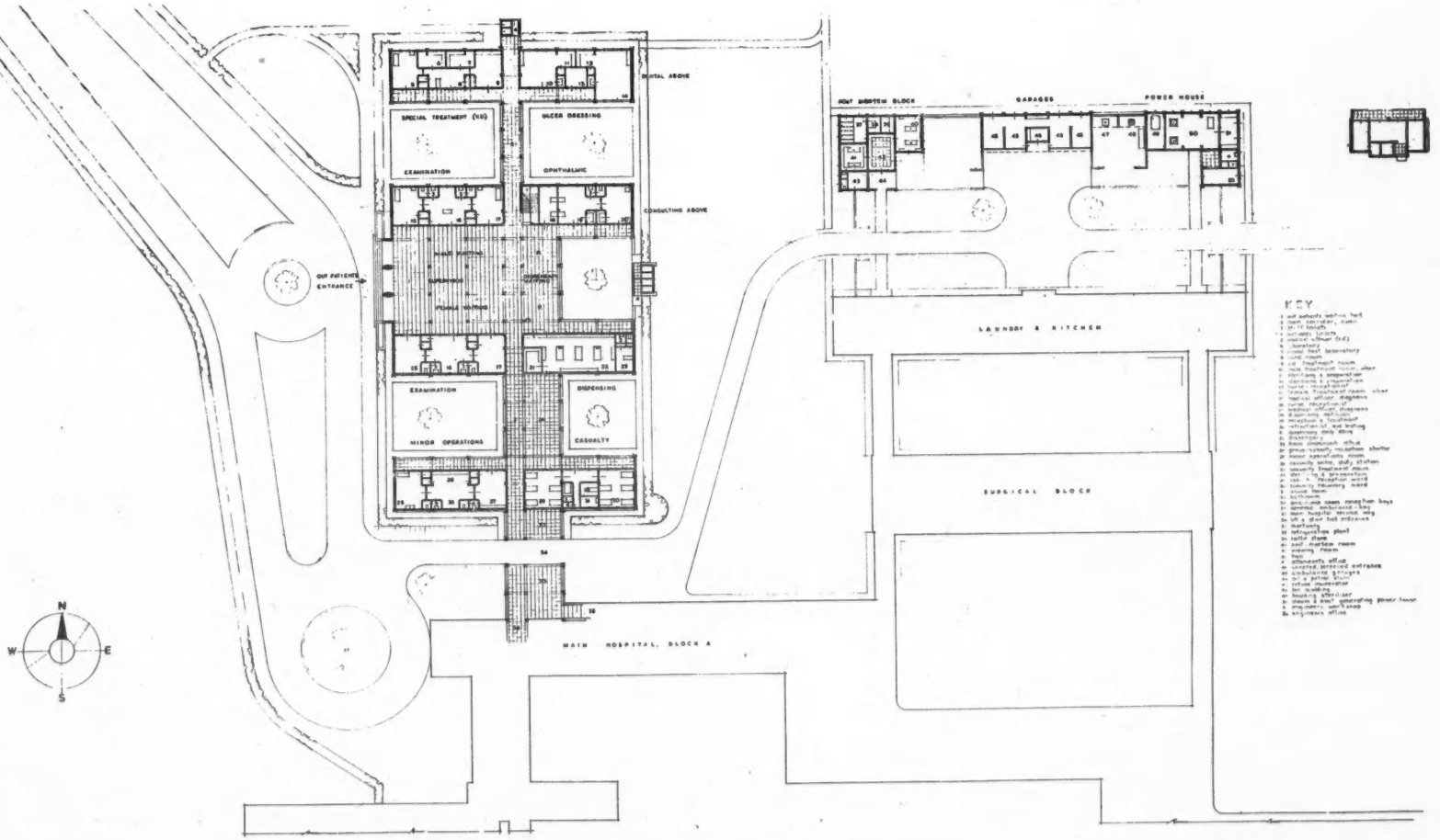
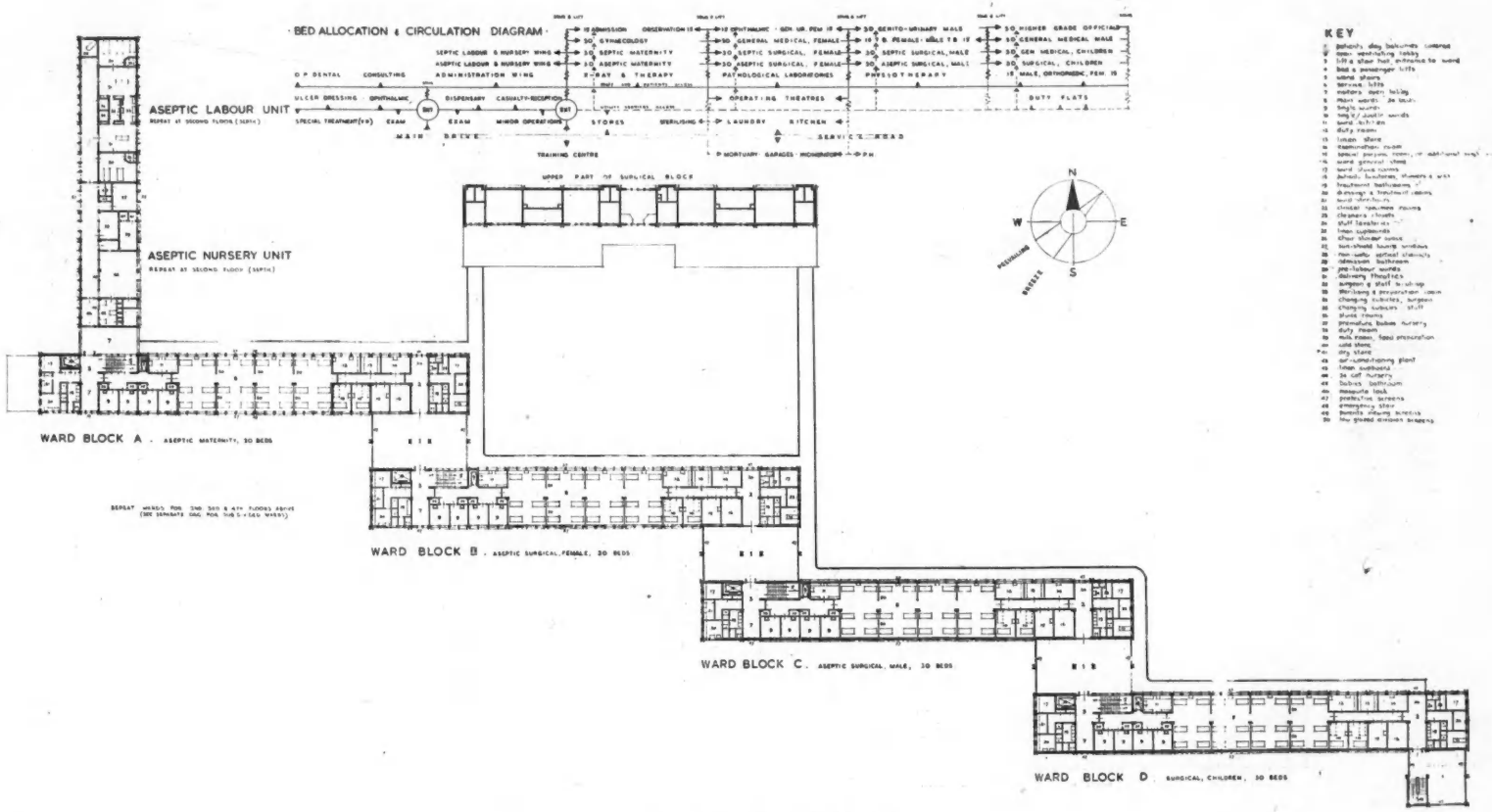
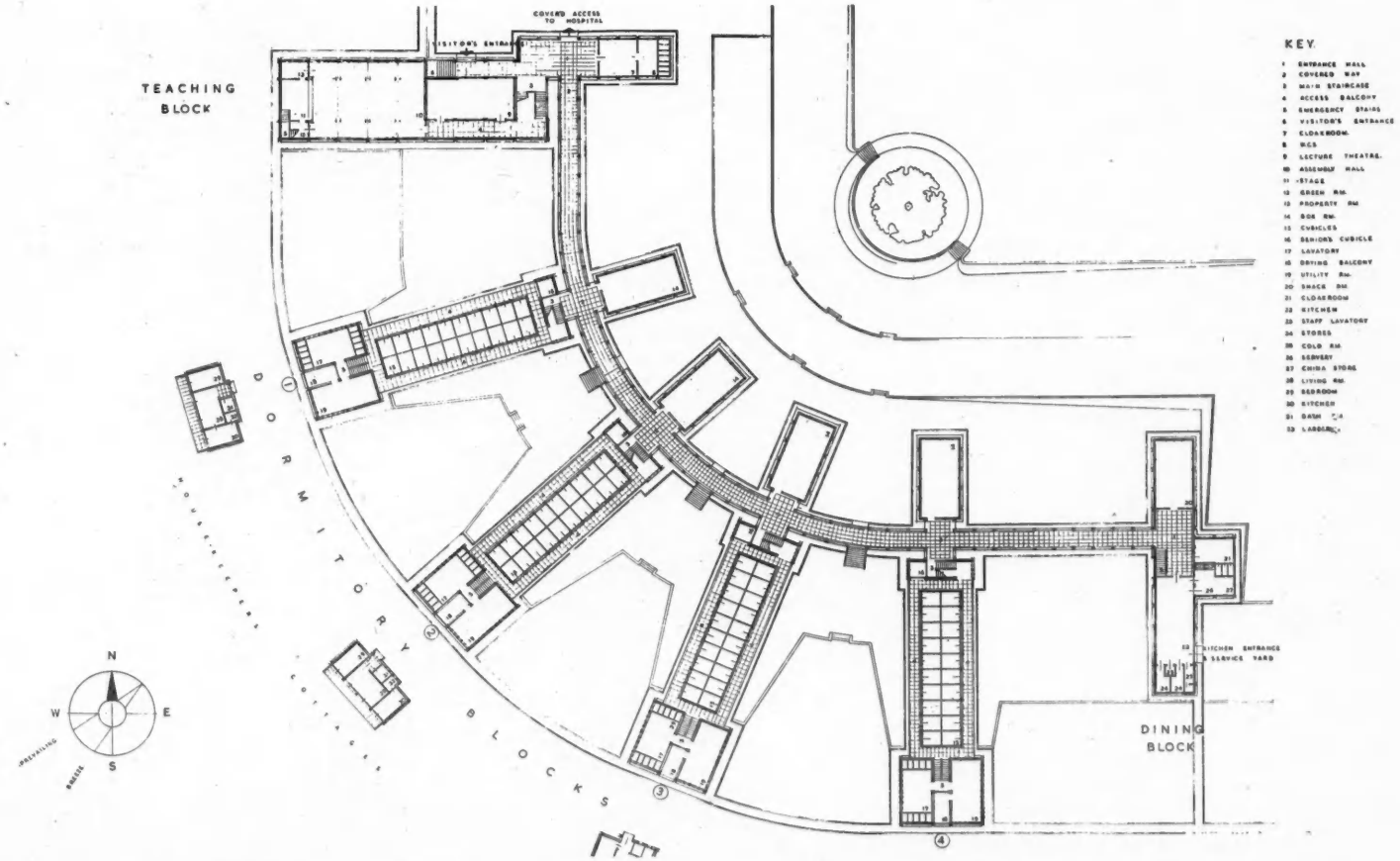


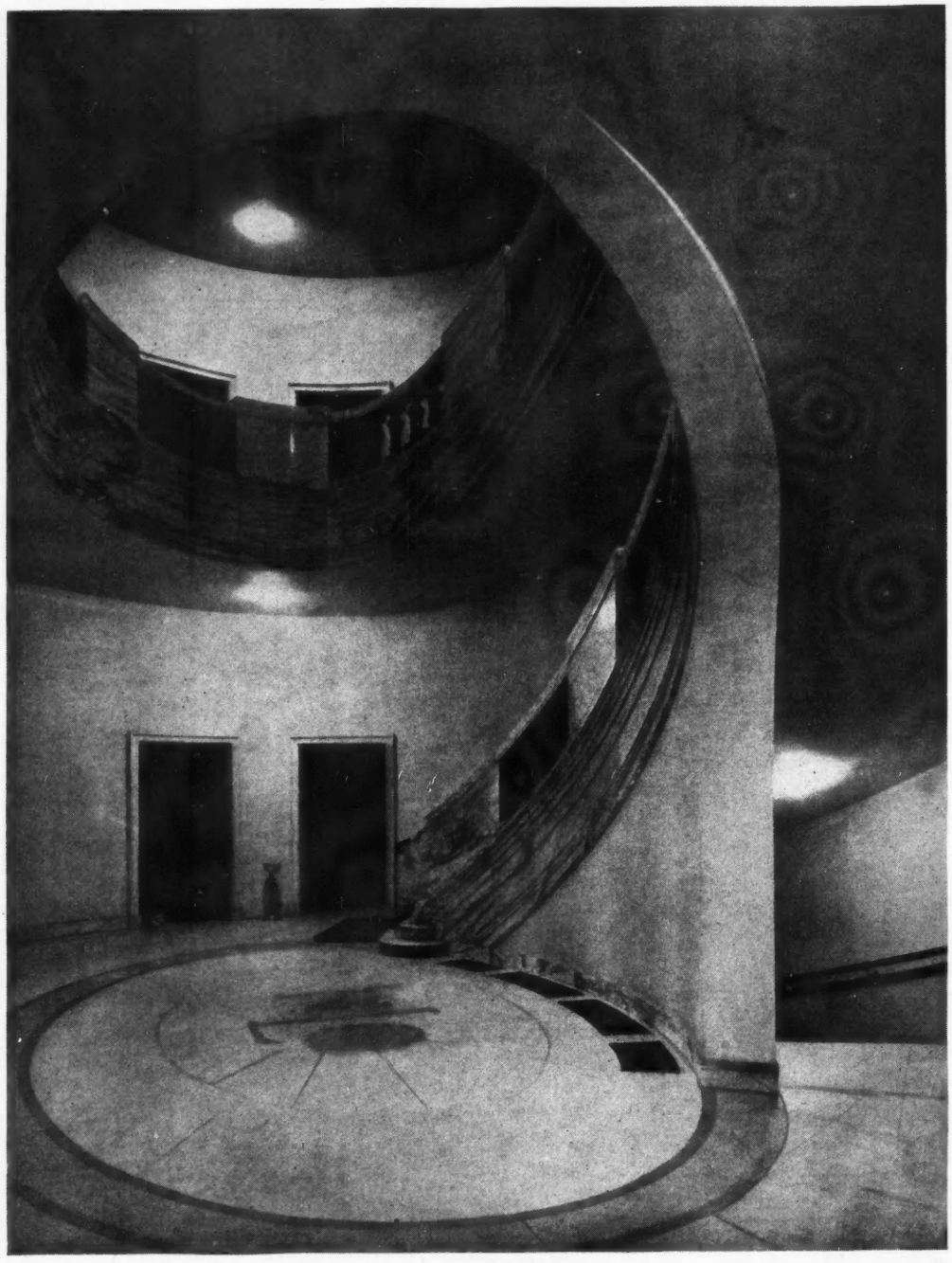
Lower-ground-floor plans, out-patients' block and service buildings.



First-floor plan, main hospital.



KUMASI CENTRAL HOSPITAL AND NURSES' TRAINING CENTRE: Lower-ground-floor and ground-floor plans, training centre.

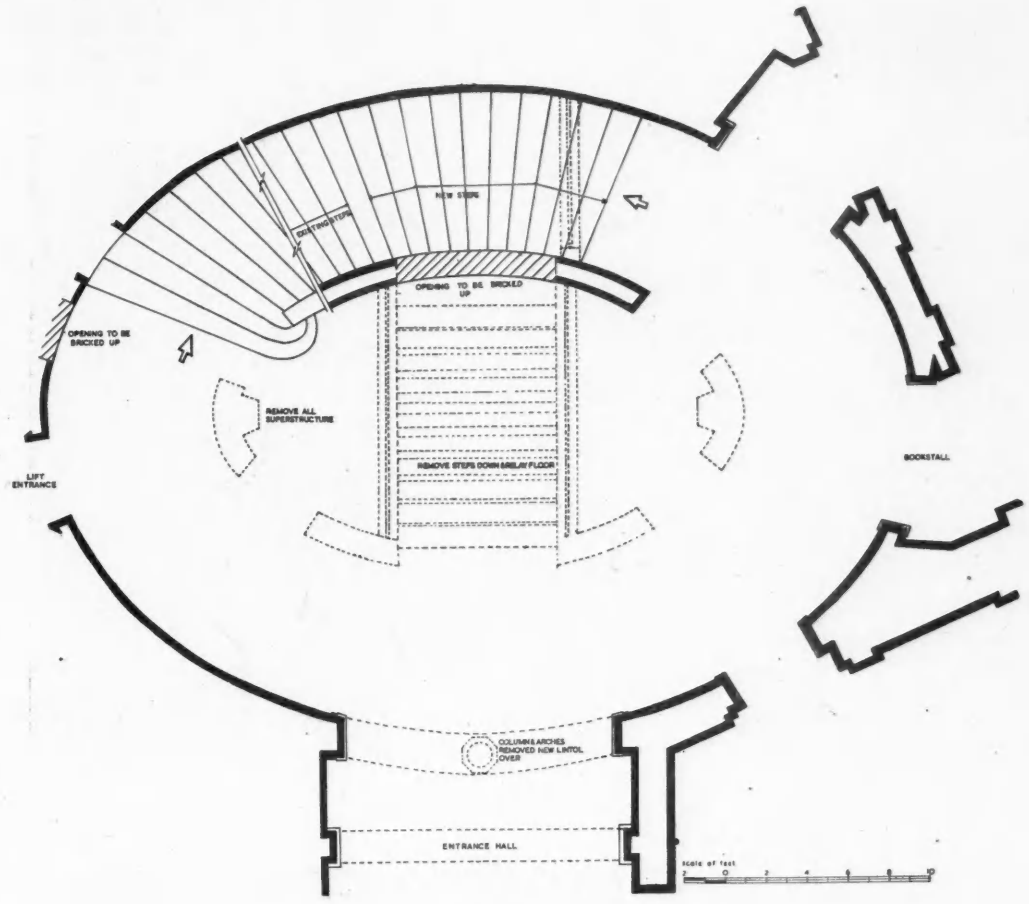


View from ground floor.

GRAND STAIRCASE, NATIONAL LIBERAL CLUB

CLYDE YOUNG AND BERNARD ENGLE, FRIBA, ARCHITECTS

THE Grand Staircase of the National Liberal Club, Whitehall-place, was badly damaged by a bomb which hit the building in 1941. Designed in heavy Palladian style, it featured a course of double Brescia marble columns on the inner string. In the new staircase, not long completed, these columns have been removed. The new staircase, designed on an oval plan with a 60 ft. major axis, is in reinforced concrete supported by a steel girder sub-structure. It is approximately eight feet wide, has no support on the inner string, and sweeps up through the three floors in an almost spiral line. Perhaps the most interesting point about this construction is that it is not cantilevered because of the doubtful state of the existing brick walls. The omission of the inner heavy columned string gives an effect of much greater space.



Ground-floor plan.

The reinforced concrete is clad with 1 in.–3 in. thick marble the cost of which was about £30,000. Despite this, the cost of the unusual construction adopted for the new staircase was one-third of the estimate for rebuilding to the old design. The architects are Messrs. Clyde Young and Bernard Engle, FRIBA.

The main contractors were Messrs. Hall, Beddall and Co., Ltd. Reinforced concrete was by Helical Bar and Engineering Co., Ltd.; steelwork by S. W. Farmer and Son, Ltd.; marble by Messrs. Whitehead; wall treatment by Howley Decorations, and plasterwork by the Veronese Co.

Steel framework for new staircase.

GRAND STAIRCASE, NATIONAL LIBERAL CLUB

After reconstruction.

Damaged staircase before reconstruction.

GRAND STAIRCASE, NATIONAL LIBERAL CLUB

BUILDING RESEARCH CONGRESS

BUILDING RESEARCH TO-DAY

The Need for Collaboration Between the Various Branches of the Building Industry

"BUILDING Research To-day" was the title of a paper presented by DR. F. M. LEA, O.B.E., D.Sc., F.R.I.C., Hon. A.R.I.B.A., Director of Building Research, Department of Scientific and Industrial Research, at the opening session of the Building Research Congress, from which we take the following extracts:—

It was only in 1920 that the Building Research Station was set up in Great Britain and this I think I can justly claim was the first to have that wide-embracing title. It was the forerunner of many others outside the British Isles.

The whole experience of building research points to the need for integration of its results. Building research, like many another branch of applied research serving a broad field of industry, does not split up neatly into the formal divisions of the sciences. Its problems often cut across the normal dividing lines; they go beyond the physical sciences into psychology, sociology and economics, and they extend into the arts and crafts. Though the man of science may feel the ground growing steadily less firm as he moves away from the exact sciences, he can never forget that it is the response of man that is the test of a building, and that this response is conditioned by the whole environment rather than by any individual part of it.

FOCUS ON PROBLEMS

For the building industry—whether personified as designer, builder or craftsman—to make effective use of building research, the results of different lines of investigation have often to be integrated and focused on particular problems. It is still, I think, too often imagined, and in this the building industry is far from singular, that research consists of the study of isolated problems, the solution to any one of which is complete unto itself. There are limited and simple fields in which this is true, but building is a complex operation of design, manufacture and construction in which major changes in any one particular procedure can rarely be made without many repercussions.

It is, indeed, the recognition of this that has led to the rapid development of building research organisations. But there is also another reason. Though the phrase "building science" may, for convenience, be loosely used, there is no separate science of building as such. Rather does building research consist of the application of many branches of science to the broad group of physical, biological, sociological, technological and economic problems that are encompassed within the ambit of the industry. In the three stages, planning, investigation and application, research needs not only the scientist and the engineer but also the architect and the builder, the economist, the worker in social studies, and the help of medical science. Research work extends outside the laboratory not only to investigations of building operations, of full-scale structures, and of conditions as they are in existing buildings, but also to full-scale trials in experimental building.

Building research is not the exclusive province of research organisations bearing that name. Major contributions come to it from the work of individuals or groups in universities, in other research institutions, and in industry. The papers presented to this Congress bear witness to that. But, however important the sum total of these contributions, something additional is required to secure coherence, integration and application. It is of much significance that central building research organisations now exist in many countries throughout the world. The formation of these, many of them in recent years, reflects the importance now attached to the application of scientific research to this traditional industry.

The advance of science is continuously helped and fertilised by contact between workers of different nations. Building research is no exception to this rule even though the conditions of its application may vary from one country to another. The friendly relations that have been built up between building research organisations in different countries do much to promote mutual help and the pooling of knowledge and experience. The numerous international organisations that link together workers in particular branches of science and technology form another link in these relations. Recently the housing sub-committee of the Economic Commission for Europe has initiated discussions on what further steps might usefully be taken to promote further collaboration.

Building and civil engineering construction form a substantial part of the annual capital investment of highly industrialised countries. In Great Britain in 1950 it amounted to some £1,300m. or 60 per cent. of the total capital investment and 12 per cent. of the national income. The prime purpose of building research is to help obtain the best return for this expenditure, whether it be by making buildings and structures cheaper in first cost, more economical in running and maintenance costs or better fitted for their purpose.

A BROADER SCOPE

The scope of building research has steadily broadened with the years. Investigations on materials and structures formed one of its early branches developing, as scientific knowledge increased, out of the empirical trials and experiments that had long been made by engineers, architects and builders. In recent years the introduction of new experimental techniques, such as those of electronics, and their application to engineering measurement, has provided potent weapons for furthering the study of structures. The application of X-ray and electron diffraction, and electron microscopy, to the study of materials has served both to check and to extend knowledge of their fundamental nature.

A new branch of engineering, soil mechanics, has arisen from the study of the behaviour of soil and gone far to show how buildings and structures may be

The L.M.B.A. were the hosts at the Savoy Hotel on September 12 at a reception given to those attending the Building Research Congress. Seen above (left to right) are Mr. Dudley Cox (President of the L.M.B.A.), Mrs. Dudley Cox, Mr. G. H. A. Hughes, Lord Samuel, Mrs. Alister MacDonald and Mr. Alister MacDonald, Chairman, Building Research Congress.

Mr. and Mrs. Dudley Cox (right) receiving Mr. and Mrs. H. I. Lindemann at the L.M.B.A. Reception. Mr. Lindemann is the chief engineer, Oslo Municipal Electric Supply System.

saved from subsequent distress. The study of heating and ventilation, lighting, acoustics and sanitation has been actively pursued and extended to the factory, the office and the communal building. The Royal Festival Hall on the South Bank here in London provides the most advanced example of the combination of acoustic science and building design. The danger to life, and the material damage caused by fire, has led to intensive research on the fire resistance of buildings and to the establishment in several countries of the elaborate facilities needed for this work.

From these branches, building research has spread into new fields. Buildings are erected for use and must provide conditions that meet the needs of their occupants and are conducive to health, efficiency and comfort. As a complement to the well-established investigations into the physical environment in buildings, there have been developed sociological inquiries into the needs of the user.

MAN AND MACHINE

Another important and interesting development of research has lain in the technical-economic sphere. In research on materials and structures we commonly and legitimately isolate technical problems for initial study. The application of their results will, in the final event, depend much on economic considerations, but these enter as a separate stage rather than as an integral part of the research itself. No similar separation of technical and economic factors is possible when we come to examine building operations, as, for example, the ways in which materials are handled and built into place on the site. Here the performance of man and machine, economic and technical data have to be obtained side by side. Such investigations are none the less a proper and essential part of building research.

With the extension of its scope there have also been developments in the methods of building research. Field trials and studies on structures, old and new, and surveys of building practice, have long played a part alongside the work in the laboratory. The design and erection of buildings as the final stage of experimental and development work affords an invaluable test of the efficiency of constructional methods, or of equipment and services, and is one that is being increasingly used. It forms an essential supplement to the information that can be gained from modifications introduced on the normal work of the industry.

OPERATIONAL RESEARCH

During the war the term "operational research" was introduced to describe an application of scientific methods of thought to the operations of war. Operational research has been given many definitions, but essentially it rests on the analysis of experience and observation with the aid of the powerful tools that modern statistical theory provides.

Though not new in building, operational research has now been applied in a more positive and conscious fashion to the day-to-day operations of the building industry, to the study of methods of producing buildings, and to the assessment of economy, efficiency, and satisfaction in use. The investigation of factors influencing productivity in the building industry, and of the use of mechanical plant in building operations, are two examples of its application in Great Britain. Another is to be found in the study of the efficiency and economy in actual domestic use of different methods of heating houses.

The application of scientific research to a traditional industry raises problems which are not present in modern industries which have grown from science. In no industry is this more true than the building industry with its heterogeneous structure and its wealth of traditional methods and crafts, and where the introduction of scientific method can often conflict with habitual ways of thought. Tradition is both an asset of great value and a stumbling block to development. It enables operations to be carried on with a minimum of detailed instruction as long as basic methods and materials remain unchanged. It expresses the results of long experience to be ignored only with peril. But the reasons which underlie traditions may often be overlooked in their intuitive and almost automatic application. Part of the function of research is to make clear the scientific basis underlying traditional methods, so that they can be more readily and intelligently modified to suit changed materials, methods and circumstances.

The structure of the industry with its separation of design, manufacture and assembly does not facilitate the introduction of that which is new. Changes may involve action by each of these three separate branches, and experience in non-traditional methods of house-building, for example, shows how much care and close collaboration is needed if potential successes are to be realised.

A NOTABLE DEFICIENCY

Apart from its engineering branches, and some of the larger manufacturers of materials and components, the building industry in this country, as in most others, is deficient in staff trained in the pure or applied sciences and has few research facilities of its own. The applications of research often need, therefore, to be worked out in detail, and demonstrated, before they can be absorbed into everyday practice. This involves an extension of research far beyond that required in industries that have a firmer scientific background.

The combination of modern technology and traditional method is an uneasy process in which there are many pitfalls, but it is the road that building has to follow and along which research must provide the guide.

We hear much of the time-lag between research and application. The means by which this can be reduced must be of vital concern to the building industry, for improvements in its methods can do much to give mankind those higher standards of living to which all aspire. While research in a manufacturing industry can be applied direct by the producer, there is, as we have seen, no such single channel through which the results of building research can be put into effect. They have to be applied, sometimes singly, but often severally, by the different branches of the industry. With responsibility divided, collaboration becomes essential if each branch is not to find very human reasons for any failure to secure collective advance. Building research organisations can do much to integrate the results of research, but in the end it

is on the industry itself that progress depends.

Building is an adventure, both te chnica and, I am told, economic, and its outcome is never predictable in full. Research can reduce its risks and increase its fruits. That is our task.

MECHANICAL AIDS FOR BUILDING

Recent Fields of Research

A PAPER on "Recent Research into the Use of Mechanical Aids for Building" was presented jointly by Messrs. N. S. Farrow (director, Howard Farrow, Ltd.) and J. F. EDEN (Building Research Station, Watford) at the Building Research Congress, from which we take the following extracts:—

The present structure of the building industry in the United Kingdom is not susceptible to such a high degree of mechanisation as is natural, and indeed inevitable, in repetitive manufacturing processes. In many industries the operational workingplace is static and consequently easily controlled, and the capital expenditure that can be afforded on the installation of the plant, although large, needs to be repeated only as and when new developments in technique occur. Building operations, on the other hand, are essentially transitory, involving the movement of plant from site to site, and are liable at any time of the year to interruption on account of weather conditions.

No one now disputes the fact that the proper use of appropriate mechanical plant can greatly reduce building costs and increase the speed of construction. It is being realised, moreover, that the main obstacle to future progress in mechanisation lies in tradition rather than in any fundamental peculiarity of the work or the work place. Much work which could be carried out mechanically has, up to the present, been so designed or laid out that the use of machines for continuous periods, and necessitating a high rate of output, is not possible, or would not be economic.

Collaboration in Research

It is important to realise that, as the design of the building determines the work to be done and very largely fixes the sequence in which it can be carried out, the architect is as much concerned as the engineer and the builder in problems of mechanisation. Unless the work is arranged in a fashion suitable for the use of machines, no machine, however cleverly designed, can work with full effect. This is, perhaps, insufficiently realised by the architectural profession in this country today, and a greater degree of collaboration between architects, engineers and builders in research on these lines is highly desirable. It is certainly more widely appreciated in the United States, where simplification of design to assist the mechanisation of building operations is one of the fundamental factors of architectural practice.

Bulk earth-moving and excavation has for many years been carried out mechanically in all industrialised countries. Mechanisation in other fields has been mainly confined to the handling of materials and less progress has been made in the mechanisation of the crafts. There has been a tendency in Great Britain to separate vertical and horizontal handling. Dumpers and power-driven runabout barrows are used at ground level to some extent and show a reduction in cost, but most of this work, except in large building projects, is still done manually, as also is horizontal transport above ground level. Vertical handling is usually mechanised, the platform hoist being extensively used. The use of cranes, and in particular the Scotch derrick, is very often limited to cases where the material has to be held in position while some manual fixing is carried out.

Cranes mounted on rails and standing 50-100 ft. high, with jibs extending an equivalent distance, have been developed into efficient machines for building purposes in some Continental countries. The popularity of these cranes on the Continent seems to be highly significant.

Ready mixed or transit concrete is used in many parts of the United States, but has not gained popularity in the United Kingdom. Its use in highly congested areas of big cities is worth consideration. Concrete pumps are not used to a great extent in building work in this country, although they are employed widely on civil engineering construction.

Research in the U.K.

In the past, machines have been developed by trial and error methods by independent plant manufacturers and builders. Because of the cost and speculative nature of development work carried out by such methods many ideas have progressed no further than the drawing board, and most of those coming to fruition have already been tested in practice in other countries.

As the introduction of plant involves speculative expenditure by the builder as well as by the plant manufacturer, the larger firms have naturally taken the lead.

Some 15 per cent. (more than £300,000,000) of the total capital investment of this country is going into housing. These houses are in the main built of brick with tiled roofs, with floor areas of about 1,000 sq. ft. The present output is 200,000 per annum and each costs approximately 2½ times the pre-war figure. Anything that can be done to secure greater output and reduce the cost of housebuilding is therefore a major contribution to national efficiency.

THE CONGRESS BANQUET

Utilising The Results Of Research

"MUCH PROGRESS has been made in the building industry within the past five years, but much yet remains to be done," MR. BROWN (Minister of Works) told the Building Research Congress on Monday night. He was speaking at the Congress Banquet at the Connaught Rooms, attended by delegates from fifty countries. "First, we need to achieve increased efficiency, measure it as you will. Next, there must be an increase in the use of powered tools. There must be a greater development in forward planning and, lastly, a general lowering of costs, while improving the standards of design and construction."

The Minister, who was replying to the toast of H.M. Government, proposed by Lord Samuel, added that we in England had a good deal to show in the field of building research, particularly in the co-operation that existed between Government and private research agencies. The main problem ahead was to get the consumer and practitioner to utilise the results of research; this was difficult but the M.O.W., through its Advisory Council, was meeting with some success.

LORD SAMUEL (President of the Congress) had earlier extended a warm welcome to all the guests. He reminded his listeners that while science had brought tremendous benefits, it had also made possible the agglomeration of immense populations in urban communities — mechanised and intellectually materialistic, and as such a danger to mankind. We wanted something better than anthills.

The speaker paid tribute to the Government for its work, particularly for the placing on the Statute Book of the Town and Country Planning Act; the development of the new towns; and the creation of National Parks. On the subject of planning, he was glad to say, having raised the question in the House of Lords, that he had seen a statement that the illuminated advertisements in Trafalgar Square would not be continued when the present leases expired.

The toast of the Guests was proposed by MR. ALISTER G. MACDONALD, F.R.I.B.A., chairman of the Congress who expressed pleasure at seeing the representatives of so many nations who had come to give the benefit of their knowledge and advice. The Congress had not set out to settle the problems of building research for all the nations, but rather to tell how each nation had got over its little snags; the delegates would go back the happier because they had discovered that other people had found the same thing.

MR. IAN LANGLANDS (Australia), Dr. Wastlund (Sweden), and Dr. Taylor (U.S.A.) responded, Dr. Taylor paying a tribute to the excellent quality of the programme and to the standard of organisation.

PHOTOGRAPHIC EXHIBITION

THE MAIN INTEREST in the Royal Photographic Society's 96th annual exhibition is undoubtedly pictorial photography, but the architectural section, although of no great size, includes a number of very fine prints. Among these is a photograph of the ruins of Coventry Cathedral from the air, and two of the Royal Festival Hall and restaurant on the South Bank. In a different section there is a portrait entitled, "County Architect"; which county architect is portrayed is not stated, but it is an excellent photograph. Further sections cover scientific, nature, stereoscopic and record photography and the standard throughout maintains the customary high standard of the exhibition in past years.

It is being held in the Society's House, 16, Princes-gate, S.W.7, which is close to the Albert Hall, and is open to the public without charge. The exhibition closes in London on October 14 and will then be transferred to Aberdeen, where it will be shown in the City Art Gallery from November 3 to November 24 next. Anyone wishing to see a collection of really fine examples of photography should pay a visit to the exhibition.

U.N. AND HOUSING RESEARCH

Need for International Collaboration

A SEARCH for "more rational house construction" is required to meet the vast backlog of housing needs in Europe, particularly in face of growing competition to-day for labour and materials used in building, according to the new Building Research Directory,* published in Geneva by the United Nations.

The importance of sharing research results within the industry, and among countries, is emphasised. The directory itself is designed to aid in what it describes as "the radically altered task" of the building industry: that of improving techniques to provide adequate housing "within a reasonable period of time." Prepared by the United Nations Economic Commission for Europe and published jointly by E.C.E. and the United Nations Department of Social Affairs, the manual is intended to facilitate direct international contacts among those carrying on building research or concerned with utilisation of its results.

The directory lists Government-sponsored organisations which have already been set up in some European countries to co-ordinate building research activities, as well as specialised organisations concerned with specific aspects of research. Twenty-three international organisations which have a direct interest in some branches of building research are also listed.

A Paying Proposition

European Governments are considering giving assistance to intensify research as a major step toward increased efficiency in the building industry. They are stimulated, an introductory article to the directory says, by the knowledge that the ratio of money put into research compared to the value of investment is lower in building than in other major industries, where the relatively higher expenditure on research has been proved to "pay." The advantages of intensified research, however, depend on whether it can be reflected in improved practice in building industry factories and on the building site.

While building research has been carried on in some countries on a national basis for 30 years, in others it has been co-ordinated only since the last war, and in some countries co-ordination is only now being considered. The directory points, in fact, to growing co-operation within some countries among scientists, craftsmen and Government authorities. This collaboration on the national level takes the form, for example, of joint committees where all these groups are represented for the purpose of improving building standards and codes of practice; in certain European countries national research organisations have been set up to co-ordinate work on all housing and building problems and to see that the right information gets from the laboratory to the contractor, or architect, or site worker.

In spite of differing climate, social customs and stages of industrial development in Europe, the directory finds "the housing problem which confronts most European countries is so similar that there are very real advantages to be gained from continuous international collaboration and exchange of information." To date, international contacts in building research work have been "sporadic."

New and Complex Problems

Building research, which started in respect of building materials, the first branch of the industry to be industrialised, now deals with many new and complex problems. Many of these newer and more complex branches of research, such as heating, ventilation, the layout of living space and modern methods in building operations, are particularly fruitful for international collaboration, the directory introduction says. It points out that the E.C.E. Housing Sub-Committee is endeavouring to promote this objective. Several meetings of research specialists and representatives of the building industries of European countries have already been held. The article says "it would be unrealistic to expect this collaboration to develop rapidly, but the trend towards fuller and more systematically organised collaboration is now clear."

* The **Directory of Building Research and Development Organisations in Europe** (Geneva, 1951; 116 pages) lists 379 organisations concerned with building research and development by name, country and subject. It will be available in English, French, Spanish and Russian from authorised sales agents for United Nations Publications, price 5s.

L.M.B.A.

Visit to House of Commons

GOVERNMENT and Opposition were happily, though not equally, represented among the guides when a party of members of the L.M.B.A.'s Central Area No. 3 visited the Houses of Parliament recently. Mr. H. W. Butler, M.P. for South Hackney, and Mr. Percy Holman, M.P. for Bethnal Green, represented the Government, and Mr. Nigel Davies, M.P. for Epping, was there for the Opposition.

But they all told the same story and a fascinating story it was, nothing less than the growth of a British democracy from the early days of parliamentary government up to the present time, 1951 being represented by the new House of Commons and the newly decorated House of Lords.

Mr. B. L. Morgan, J.P., chairman of the Area, presided at a luncheon afterwards, and thanked the M.P.s for a very interesting visit.

Two of the M.P.s who conducted the party round are members for constituencies in the territory covered by Central Area No. 3, the third, Mr. Nigel Davies, is M.P. for Mr. Morgan's own constituency.

Reception to Overseas Delegates to Building Research Congress

A RECEPTION to overseas delegates to the Building Research Congress was given by the London Master Builders' Association at the Savoy Hotel on September 12. Those present included: Viscount Samuel (President of the Congress), Mr. R. F. Legget (Director of Building Research, Canada), Mr. Ian Langlands (Chief, Division Building Research Commonwealth, Scientific and Industrial Research Organisation, Australia), Mr. J. E. Jennings (Director of Building Research, South Africa), Mr. D. E. Parsons (National Bureau of Standards, U.S.A.), M. A. Marini (Directeur du Centre Scientifique et Technique du Batiment, France), Dr. C. A. Hart (Vice-Principal, Roorkee University, India), Dr. Walter Taylor (American Institute of Architects), Professor G. Wastlund (Sweden), Dr. O. Birkeland (Norway) and Mr. Alister MacDonald, F.R.I.B.A. (Chairman of the Organising Committee). Mr. Dudley F. Cox, President of the London Master Builders' Association, and Mrs. Cox, received the guests. Photographs taken at the reception will be found on pages 385 and 386.

Donations

The L.M.B.A. has sent donations of 20 guineas each to the Builders' Clerks Benevolent Institution and the London Association of Builders' Foremen and Clerks of Works.

The annual dinner of the Builders' Clerks Benevolent Institution, of which Mr. W. Kirby Laing is president, takes place in the Café Royal on October 9. The annual dinner of the London Association of Builders Foremen and Clerks of Works, of which Mr. W. R. Toogood is president, takes place in the Café Royal on October 30.

The L.M.B.A. has also sent a donation of 5 guineas to the prize fund of the Hammersmith School of Building.

OBITUARY

Sir Eric Maclagan, K.C.V.O.

Sir Eric Maclagan, K.C.V.O., C.B.E., Ll.D., F.S.A., Hon. A.R.I.B.A. (former director, Victoria and Albert Museum and former vice-president of the Society of Antiquaries), whose death was announced recently, was head of the Department of Architecture and Sculpture at South Kensington before he became director in succession to Sir Cecil Harcourt Smith. His services to the study of these arts as well as to the museum were very great. After his retirement from the museum in 1945 he spent much of his time as a lecturer on aspects of British art for the British Council in all parts of Europe, and was lecturing for them in Spain at the time of his death. He was also chairman of the Advisory Committee on Buildings of Special Architectural or Historic Interest of the Ministry of Town and Country Planning.

In the architectural sphere Sir Eric Maclagan also did as much, if not more, in the way in which, year in and year out, he worked for the development and support of the official advisory committee system in the Church, both diocesan and central. He was himself chairman of the two committees of Winchester and London and was a leading member both of the Central Council and also of the recently set up Cathedrals Committee. Able to impress both the higher administrative circles in the Church and also their critics outside, he held a position which may fairly be described as unique. He had, as is well known, an extensive knowledge of Italian sculpture as well as of early and Byzantine work. He was a really great man of quite unusually wide knowledge, and he will be sorely missed.

Alfred and William Croad

The sincerest sympathy will be extended to Mr. Jno. Croad (Hon. Treasurer of the Southern Counties Federation of Building Trades Employers), who within a period of eight days has lost his brothers, Alfred and William Croad.

Mr. Alfred Croad (aged 78) retired, following the loss of his sight, some nine years ago from the business founded by his father. In World War 1 he was Officer-in-Charge of Portsmouth's Volunteer Ambulance Service. Mr. William Croad (aged 79) was also a director of Jno. Croad, Ltd., builders, of Portsmouth, which was established by his grandfather. He devoted his life to the business, and among the many important works that were carried out under his direction was the rebuilding of Portsbridge after the demolition of the Hilsea arches.

HOUSING MAINTENANCE ECONOMICS

The Danger of Making Insufficient Contributions to Repair Funds

At the annual conference of the Institute of Housing, now being held at Scarborough, three papers are being presented on the theme "The Economics of Housing." Below we reproduce the first paper in the series, "The Economics of Maintenance," by Mr. H. C. Hampton, F.R.I.C.S., A.M.Inst.C.E., F.I.Hsg., Housing Director, St. Marylebone Metropolitan Borough Council.

Mr. Hampton said :—

I HAVE been asked to deal with the economics of maintenance from the point of view of local authority housing. The importance of this subject is clear when one remembers that the cost of maintenance is the second largest item in rent calculations, and is constantly increasing. Whereas the initial cost of land, buildings, roads and sewers, etc., may be equivalent, under our current 60-year loan system, to 19s. or more per week (for dwellings at a structural cost of about £1,250), the weekly equivalent of repairs expenditure varying between £5 and £20 per annum per dwelling is approximately from 2s. to 7s. 6d. per week. These figures merely illustrate the relative effect of building costs and maintenance expenses and do not fit all areas and types of dwellings.

As a preliminary to dealing with the subject I propose to define my interpretation of the terms "maintenance" and "economics." By "maintenance" is meant the structural repairs and periodic maintenance necessary to keep a financial asset in a habitable condition, exclusive of improvements and management. The term "economics" implies a scientific analysis designed to strike a balance between well-organised expenditure and the money set aside annually for the purpose. I shall not deal with the financing of deficiencies nor with supplementary rate fund contributions; these are outside my province. Neither shall I refer to requisitioned premises and emergency factory-made bungalows where the problems of standards and finance are different.

The conception that the cost of maintenance should be met out of a fund, instead of being charged direct to the revenue account each year, has been an accepted principle of municipal housing finance for over 30 years and is intended to act as a buffer to absorb fluctuating expenses from year to year. The Housing Act, 1919, required the setting up of repairs funds, based on 15 per cent. of the rent income. The Housing Act, 1936, required the contribution to be not less than 15 per cent. of the annual exclusive rent, but under the Housing (Financial and Miscellaneous Provisions) Act, 1946, the figure has to be not less than £4 per house. The use of a percentage basis had obvious draw-backs, especially when related to artificially determined rents, and many local authorities soon found that 15 per cent. was not enough, and that a fixed sum per dwelling, varied as between differing types, gave the most satisfactory basis.

In theory maintenance work ought not to present a difficult problem. A detached observer might be excused for thinking that one simply formed a programme of estimated expenditure, then one divided the total cost of that programme by the number of years it covered, thus arriving at the average cost per year, a sum which would without question be put aside every year to form a fund to finance the work. In practice, especially post-war practice, the subject is complicated by rising costs (labour, materials, plant and transport), by problems of new techniques, forms of construction, materials and equipment, by war-time arrears of work, sometimes by the accumulation of balances where new properties predominate, sometimes the opposite where there are relatively large pre-war holdings, by the temptation to raid reserves, occasionally by the deferment of vital repairs too long, and finally by the desire to keep rents down by making a low annual contribution.

There are also differences in the practice of various authorities over the extent of decoration work, methods of organisation and execution, and in the type of properties to be maintained (e.g. houses and multi-storey flats). In addition there are substantial differences between the problems facing rural, urban and metropolitan areas. It is because of all these complexities that maintenance work, and the financing of it, is a twin problem that few local authorities, or their officers, feel they have satisfactorily solved. I propose to take the two parts of the subject in what I believe to be their logical order: (*a*) the maintenance work itself and (*b*) its financing.

The limiting of the cost of maintenance to a reasonable sum depends broadly on two factors: (*a*) the scope and standard of the work, and (*b*) the method and efficiency of execution. Within these two headings there are numerous differing and sometimes conflicting items which are worth examining in a little more detail.

DURABILITY OF MATERIALS

As far as the scope of the work is concerned, the first point is that the dwellings should initially be constructed of the most durable materials that can be specified within the limits of capital expenditure imposed by Government Departments. This aspect of the matter, which is within our limited control as far as dwellings now being planned and built are concerned, was admirably examined at our 1949 Conference at Blackpool by Dr. R. Bradbury, F.R.I.B.A., City Architect and Director of Housing, Liverpool, and I shall not deal with it further, except to point out that the spending of an extra £100 on the capital cost of a dwelling, based on our 60-year framework, has the same effect on the weekly rent as an annual repairs expenditure of £3 12s., i.e. 1s. 5d. per week. One does not need to consider for long to realise how easily an unwise saving of £100 in capital expenditure might cost more than an average of £3 12s. a year in upkeep.

The extent of municipal housing maintenance work can broadly be described, in surveyors' language, as "good tenantable repair." It comprises day-to-day jobbing work (such as plumbing and joinery repairs, fences and gates, etc.), special renewals (such as retiling roofs, repointing brickwork, new tanks, grates, heaters, etc.), and the programmed decoration work. I shall refer to day-to-day repairs again later on, and simply wish to point out here the importance of making tenants responsible for the cost of repair work arising from their own misdeeds, as provided for in most tenancy agreements. This not merely keeps isolated items out of the repairs account but helps to prevent further accounts from arising and is particularly important in these days of lack of respect of public property. Ways in which good management can cut down the need for or frequency of special renewals and repairs are also mentioned later.

INTERNAL DECORATIONS

There is, however, one matter, viz., the extent of decoration work, which is worthy of discussion here. Should tenants be expected to do their own internal decorations? On this point there are varied views and different practices particularly as between various parts of the country. It has been stated that 82 per cent. of our northern local authorities leave internal decorations to their tenants, whereas only 15 per cent. do so in the south; in some cases materials are supplied and brushes are loaned. I think an exchange of comment at the conference, based on practical experience, would help in sorting our conflicting aspects of this matter. Some say that if the tenant is made responsible he is able to choose when he can best afford to do the work; he can also save labour costs by doing the work personally and will probably take a greater pride in the premises. On the other hand others state that tenants can more easily find a small sum of money weekly than substantial sums at infrequent intervals: finally, many feel that the quality of the work suffers if left to tenants. There is certainly no advantage if the only effect is to transfer the same responsibility merely from the tenant's right-hand pocket to his left.

With reference to programmes of external decorations, and also internal decorations where undertaken, it is not possible to quote periodic cycles (in numbers of years) which will be generally acceptable to all who attend a national conference, because apart from personal preferences there are wide differences in atmospheric conditions which affect external work. The most important part of painting work is the preparation, the part that is hidden once the first coat of paint is applied. The addition of a year to one's period for external decorations, whether that cycle is now three, four or five years, is tempting, but it may increase

the cost and difficulties of preparation and even involve the need for structural repairs; £10 every four years is cheaper than £13 every five years.

The problem of special renewals is one to which I feel insufficient attention is generally paid, particularly in post-war housing where expensive equipment is often installed and where tenders for initial construction may be cut by cheapened specifications. If one takes a life of 60 years, a figure which has much to commend it, it should be remembered that during that time back-boilers, storage tanks, and electric or gas coppers may need renewal several times, roof coverings, gutters and down pipes may possibly not last the period, electric wiring may need overhaul, external renderings and pointing may begin to disintegrate, fencing and paths may need several renewals or extensive patching (depending upon type), and that during the same period non-traditional materials may perhaps acquire a tradition of expensive maintenance. Blocks of flats sometimes bring extra problems, such as the renewal of central hot water and heating plant, laundry machinery, heated drying cabinets, lifts, paved courtyards and playgrounds. All these things are within the "scope of the problem" but are rarely adequately budgeted for.

To illustrate the point, suppose that after having worked out the average annual requirement for decorations and small general repairs, based on past experience, a total of £4 per dwelling per annum is added for future renewals of the kind mentioned above. This sum will only produce £240 per dwelling in sixty years—not an excessive sum when it is remembered that the capital cost of the dwelling may have exceeded £1,500, and that some parts may have to be renewed more than once in the 60 years. These figures are not applicable to all circumstances and are given, as stated, as an illustration of the effect special renewals may have upon the average annual expenditure.

ORGANISATION OF WORK

We all know that some authorities execute their maintenance work by direct labour, sometimes supplemented to a greater or lesser degree by the use of contractors, whilst others rely entirely on outside firms. In a paper dealing with the economics of maintenance I do not propose to say that either system has a monopoly of virtues, although the general experience of local authorities seems to show that at least a nucleus of direct labour staff is desirable. One matter at least is beyond question, namely, that for all but the largest authorities some classes of work (such as electrical repairs, overhaul of gas and electric apparatus, asphalt work and other work of a specialist nature) are usually regarded as outside the economical scope of a direct labour organisation. An essential preliminary requirement, however, for a really efficient repairs system, no matter how the repair work is done, is good property management. By this I mean the creation of a co-operative relationship between landlord and tenant under which the tenant minimises the need for repairs and under which the landlord advises on how to get the best from the equipment, keeps in regular touch with the property and promptly executes whatever work is necessary, thus reducing the risk of major defects. The Central Housing Advisory Committee, in its recent report entitled "The Care of Fittings and Equipment in the Modern House," dealt admirably with the value of demonstrations, proper instructions and regular contacts with tenants and premises.

Among the important points for the local authority in connection with contractors' work are good specifications, proper supervision of execution and completion, and careful scrutiny of builders' accounts. These three matters are vital in getting value for money, and require trained and experienced staff.

As far as direct labour maintenance work is concerned, I want to deal with a few matters of an administrative nature which have a bearing on efficiency and therefore upon cost. It is not possible to suggest a framework which will apply to all local authorities, owing to the almost unbelievable variety of ways in which housing departmental responsibilities are subdivided, but it is my personal view that the administrative control of maintenance work (below committee level) ought to be under an experienced and qualified chief housing officer, whether or not he is responsible for the execution of the actual repair work. I feel that it is only in this way that expenditure on maintenance and its effect on tenants can be properly controlled; it is worth noting that this method has been the standard practice in private estate management for many years.

A trained and experienced building trade superintendent is necessary to undertake the day-to-day organisation; this job specifically requires a solid trade or professional background. The question of the purchase of materials is important; whether or not this is under the control of a housing department, experienced buying, in the right quantities, can have a noticeable effect upon cost. It is difficult to generalise upon workshops and central plant as so much depends on the size of the organisation, but it may suffice to say that mechanical workshop aids (such as woodworking machinery) are great time-savers where the volume of work justifies the outlay. Another vital matter is adequate supervision, coupled with a sub-depot system (if the area is big enough) so as to cut down travelling time. I am firmly of opinion that money spent in additional payment to charge-hands and sub-area supervisors is well worth while in its effect on output. On the question of travelling time I have often been envious of colleagues in private estate management who make good use of repair men able to turn their hand to work in various trades in one visit, thus producing useful savings.

The question of bonus payments for repair work has been debated on a number of occasions. I feel that the test of any incentive payment scheme is whether it makes some positive encouragement to better output; it should not merely be a disguised way of increasing the pay packet. It is not easy to frame an effective bonus scheme for jobs like unstopping drains or eradicating dry rot, but there is no difficulty over repetitive work like decorations.

COSTING

No business concern will thrive if it does not know what it is spending. A system of cost records is essential (*a*) to assist in controlling expenditure on specific jobs against estimates or allocations, (*b*) for building up estimates for future programmes, and (*c*) for providing comparative figures for alternative ways of executing jobs. As far as (*a*) is concerned—the checking of work in progress—speed is more vital than precision, making sure that authorised on-costs are included. The spending officer must have his approximate costs while the job is still "hot," and he may not be able to wait for the accurate results of mechanised systems. With regard to (*b*)—future estimates—I want to make a plea for the adoption of a uniform basis for calculating and classifying expenditure so as to facilitate the exchange and comparison of data between one authority and another. I know that this point has been considered by the Institute of Municipal Treasurers and Accountants, and I would like it to be taken up actively by the Institute of Housing as well.

In considering the actual annual expenditure on repairs and maintenance by various local authorities, one has to try to keep in mind the differing types of dwellings, the differences in approach to the internal decorations question, and sundry local variations in rates of pay and other basic costs. Nevertheless both the range as between various councils and also the changes in expenditure since the war are worthy of some study. As far as pre-war costs are concerned it was shown in P.E.P. Broadsheet No. 308, entitled *Economics of the Council House*, issued in January, 1950, that the average sum spent per dwelling on repairs in 1939 was £4 7s. 9d., 8 per cent. spending not more than £2 and 2 per cent. spending from £10.1 to £15 per year; these figures were based on a sample survey of 162 local authorities in England and Wales. According to *London Housing Statistics* 1948/49, issued by the Director of Housing of the London County Council, the average cost of repairs in 1939 to the 81,681 dwellings in the L.C.C. Housing Revenue Account No. 1 was £5 16s. 10d.

The post-war rates of annual expenditure show substantial changes. The P.E.P. Broadsheet quoted above shows that in 1948/49 the average expenditure per dwelling was £9 9s. when calculated by reference to new and old houses, and was £11 12s. if post-war houses were excluded; 9 per cent. of the cases examined spent more than £20, whilst 4 per cent. spent from £4.1 to £6. The London County Council figures, taken from their document quoted above, were £9 1s. 2d. for 99,103 dwellings in 1948, and £14 19s. for 108,086 dwellings in 1949. The Institute of Municipal Treasurers and Accountants has conducted some research into the 1949/50 position and has recently published a valuable document entitled

Housing Statistics 1949/50. This shows that in the 83 county boroughs with a total of 654,792 dwellings of all types the average expenditure on repairs in 1949/50 was £8.6 per dwelling, a figure which would doubtless have exceeded £10 if recently completed dwellings had been omitted from the calculation. Several individual authorities spent over £16 per dwelling during that period, the London County Council figure being shown as approximately £17 per dwelling.

POST-WAR EXPENDITURE

It seems broadly true that actual average expenditure on maintenance by local authorities in 1948/49 was from 2 to 2½ times the comparable 1939 figure. Apart from this fact it is difficult to draw clear inferences from the statistics, as they are obviously not comparable in many ways. This again shows the need for a more detailed study of maintenance costs under various well-defined sub-headings by professional societies. It is too early to quote figures about the maintenance costs of post-war dwellings, but I know that many technical officers feel that the quality of materials, the non-traditional methods and the expensive equipment installed in the last few years, lead them to expect a relatively high level of expenditure in 20 to 25 years' time.

Various figures have been quoted from time to time to show the effect on maintenance costs of changes in rates of wages, prices of materials and the fall in productivity since 1939. The answers are not always quite the same but for the purpose of this paper I am quoting figures extracted from a memorandum entitled *Rent Restriction and the Repairs Problem* issued by the Royal Institution of Chartered Surveyors in May, 1951. This document was by definition not concerned with local authority housing, but nevertheless the basic analyses of changes in rates over the last 12 years seem to be of general application. In extracting and quoting figures from the memorandum one runs the risks which are inherent in taking any matters out of their context, but the following points seem worthy of being more generally known.

The memorandum shows that the inner-London 1939 rate for craftsmen was 1s. 9d. per hour, plus 1½d. for National Health Insurance, tool allowances, etc., making a total of 1s. 10½d. per hour. The equivalent 1951 figure is quoted as 3s. 3d. per hour, to which 6½d. is added for incidentals as above, plus 11½d. for a fall in production of 25 per cent., making a total comparable hourly figure of 4s. 9d. which is 253 per cent. of the pre-war rate. The same document compares costs of materials based on London work, from which the following are selected examples :

Materials	*Unit*	1939 *price*	*March, 1951 price*	*Percentage comparison*
		£ s. d.	£ s. d.	
3 in. C.I. rainwater pipes	Yd. run	2 3	6 0	267
Lead pipe in coils	Ton	25 15 0	157 10 0	612
Softwood (average)	Standard	22 0 0	110 0 0	500
Fletton bricks	Thousand	2 10 6	4 12 0	182
22 in. by 12 in. Welsh slates	Thousand	26 5 0	70 0 0	267
Paint (white lead)	Gallon	16 4½	2 9 0	299

After a careful analysis of samples to ascertain the extent to which various types of materials are used in maintenance work, the memorandum comes to the conclusion that materials for repairs in mid-1951 will cost 300 per cent. of the pre-war rates. Finally the conclusion is reached, bearing in mind that labour costs amount to about 60 per cent. of the total, that the 1951 maintenance costs are 275 per cent. of the pre-war costs. When one looks at the changes in local authority costs per dwelling as discussed earlier, it becomes clear either that local authorities still have arrears to make up or that the inclusion of new dwellings is masking the real problem.

As a slight digression from the subject of this section of the paper it is of some interest to note the comments made in the R.I.C.S. Memorandum on the sums needed by private landlords for the maintenance of dwellings. It is stated therein that "an analysis of records for many thousands of dwellings has clearly shown that on average the actual expenditure (in 1939) was about equal to, or slightly in excess of, the relevant statutable deductions. Expenditure on old properties was generally above average." As an example, the deduction referred to would generally be £8 per annum for premises of £30 gross value. The same document proposes, as a short-term measure, that on March, 1951, figures, the rent of such premises should be increased by £14 per annum, making £22 "available" for repairs.

REPAIRS FUND CONTRIBUTIONS

In order to get the whole problem into perspective one needs to have a look not only at the outgoings but also at the income of repairs funds. In case the order in which these matters have been treated is questioned it should perhaps be pointed out that repairs funds exist to provide the money to carry out work of an approved scope and standard; they are not or should not be instruments of policy in themselves.

The P.E.P. Broadsheet No. 308 referred to earlier showed that whereas the average recent annual expenditure per dwelling was £9 9s. the average annual contribution into the fund was only £6 10s. (i.e., 2s. 6d. per week); in 1939 the income was very close to the expenditure of £4 7s. 9d. The same document points out that pre-war balances were surprisingly low, and that about 70 per cent. had either a deficit or a balance not exceeding £10 per dwelling.

The Institute of Municipal Treasurers and Accountants 1949/50 statistics mentioned above show that the average normal contribution in that year among the 83 County Boroughs was just under £7 (after excluding the new 1949/50 houses) and that the accumulated balances in all their funds dropped from £7½ million to £6½ million in the year, the final figure being equivalent to slightly less than £10 per dwelling. That such a startling drop in reserves should have occurred at a time when one would have expected the reserve funds to be accumulating for future expenses shows how unrelated are the expenditure and the contributions. It is quite wrong to regard a credit balance in the repairs as accumulative profit which can be "raided." On the contrary, an appreciable reserve should be expected in the funds for all new estates as a natural result of an equalised annual income, in order to provide for the troubles of old age. I do not agree with the view that the number of houses being built has any bearing on the problem; I feel this is an illusion which does not bear scrutiny.

I said at the outset that I should leave the subject of increased rents and supplementary rate-aid for treatment by better financial brains than mine. The policy questions involved are outside my province, but nevertheless, I feel that local authorities should realise where a policy of inadequate repairs fund contributions may lead them. If the sum paid in each year does not provide a fund for future renewals as well as enough money for current work the time will doubtless come when there are no resources left for financing such major renewals. Extra contributions from the general rate fund will probably be unavoidable then, and the future local authority members and officers who will have to cope with those situations will doubtless question the foresight of those who took such a limited view. My plea is therefore for a long view to be taken of the maintenance problem, and for the fixing of an annual repairs fund contribution which will, as far as can humanly be foreseen, produce a fund which will at all times be adequate for calls made upon it in pursuance of the approved scale of work.

It is, of course, perfectly clear that no one in his senses would say now what it will cost to maintain a council house in the year 2000. On the other hand, it is quite practicable for an officer in charge of housing repairs to give an approximate estimate of what, on present prices and at current standards, it is likely to cost over a period of 60 years to keep a new house in habitable condition, and equally what is the estimated cost over 40 years of maintaining one now 20 years old. Such a set of calculations, sub-divided as necessary into estates and types, and with due regard to existing balances, give (by using as the divisor the unexpired period of the 60-year "life") the sum or sums which on present information ought to be put aside annually to keep each type of dwelling in proper condition. I have suggested the use of a theoretical life of 60 years because so many of our housing calculations are based on that period, but I recognise that when property is say, 45 years old it may be possible then to re-assess its likely remaining life and to calculate accordingly. Logically, each estate should have a separate repairs account, each one being self-supporting over a period, but whether this is really desirable or necessary, I will leave to others to say; there is certainly some value in maintaining one comprehensive account so that minor ups and downs can be absorbed.

In order to take account of changing price levels and additional maintenance experience regular comprehensive revaluations of the components of the repairs fund

are essential. The frequency with which this should be done is open to argument, but my own suggestion is five-yearly intervals.

I have tried in this paper to show some of the technical and financial problems of maintenance work, the scope of the work usually undertaken, the remarkable variation of expenditure between various local authorities, the extent of post-war rises in basic costs, the way in which contributions lag behind expenses, and the need for maintaining adequate funds. Quite a number of local authorities are making contributions of £15 to £20 per annum for their new houses and a few in inner London are putting aside over £20 per year per dwelling. I am sure that figures of this sort are the ones that are most realistic, assuming the general internal decorations standard of southern England. If I am right in this view, many other authorities will have to face the problem of inadequate reserves as work increases.

An expenditure of from 5s. to 10s. per week for maintenance is formidable. It constitutes a challenge to local authority members to see that their repairs fund arrangements are sound and are regularly reviewed, and to consider whether the scope and standard of their maintenance work ought to be modified. It is also a challenge to housing officers (using that term in a wide sense) to use every endeavour to build wisely, to get the co-operation of tenants by good management, to improve the efficiency of their repairs organisations, and to get the best possible output. The problem is increasing in volume at the rate of 200,000 new council dwellings a year and is not one simply of money or merely of labour and materials, but has wider human and social implications in keeping the homes of many citizens fit to live in at rents which they and the community can afford.

HANDLING CEMENT IN BULK

Recent Developments on Small and Medium Size Contracts

WITH the cost of paper cement bags now standing at over 20s. per ton of cement and representing nearly 30 per cent. of its cost, many contractors have been looking for some method whereby cement can be delivered to a new construction site in bulk. The need for such an arrangement has become even more necessary owing to the acute shortage of kraft paper required for making cement bags, and the recent development introduced by F. Shepherd and Son, Ltd., of York, is therefore of particular interest at the present time.

For very large building and civil engineering contracts satisfactory systems for handling cement in bulk are already available. The system described here answers the problem of delivering cement in bulk to small and medium size contracts by aerating the cement with compressed air in truck-mounted pressure containers and delivering through a 2½-in. diameter flexible hosepipe to a site cement silo in the same manner that petrol is delivered by tankers. Although the cement silo described here is rather more elaborate, a simple silo of some 8 tons capacity could be made for not more than £60.

The equipment involved consists, briefly, of two pressure containers for carrying cement, mounted on a lorry with an engine-driven compressor for delivering compressed air to the pressure containers from which the cement is exhausted into cement silos located on the site. This system, which has proved itself to be highly successful in Sweden, and is on the same lines as a system developed in 1937 in this country for handling pulverised coal, has been proved by the firm to have a number of advantages, including saving in the cost of paper bags; elimination of unloading gang; improved storage conditions on the site. There should be no wastage of cement such as takes place with bagged cement, and no site storage hut is required; the problem of disposing of empty bags is eliminated; with a properly designed site silo, greater accuracy can be obtained in the measuring out of quantities of cement and a possible source of waste eliminated here; where properly designed site silos are used a greater output is obtained and there is no need for a cement man; handling is cleaner and safer; with the use of a flexible hosepipe it is not necessary for the vehicle to get right up to the site silo.

The problem of bulk cement handling for small contracts has been studied by the firm for about two years and many different schemes have been studied. In the first place, it was considered essential that the equipment on the site was of the simplest nature, also that the cement should be in an elevated container on the site to ensure a gravity feed to the mixer and to reduce handling from the silo to the mixer to a minimum. This meant that the elevating equipment for unloading the cement into the overhead silo had to be built into the lorry. It was also decided that compressed air was the most suitable medium for handling the cement. This system had the advantage that the

The special lorry, with its two pressure containers, delivering cement in bulk to a building site.

cement does not come into contact with any moving parts.

About 18 months ago it was decided that a special vehicle would be necessary. The Yorkshire Engineering and Welding Co., of Idle, Bradford, were therefore approached. The equipment which that firm designed and manufactured consisted, briefly, of lorry-mounted pressure containers, with a capacity of 3½ tons of loose cement and stressed for a working pressure of 40 lb. per sq. in., and an engine-driven compressor along with all the necessary pipe lines, valves, etc., and on similar lines to equipment designed in Sweden by Helmuth W. Carlsen. The Skanska Cementaktiebolaget of Stockholm, who have been operating this equipment in Stockholm for some two years, were most helpful in giving their advice.

F. Shepherd and Son, Ltd., imported from Tornborg and Lundberg, of Stockholm, two models of their cement silo which incorporates an electrically-driven screw feed and has a simple automatic weighing device. This, combined with a tipping bucket on a swinging arm, reduces physical effort to a minimum. The cement is discharged into these silos by means of compressed air. The plant has now been in operation for some months and has proved satisfactory and, with practice, steady improvement in pay load and turnround has been obtained, thanks to the full co-operation from G. and T. Earle, Ltd., cement manufacturers, who have followed the development of this equipment with great interest. The vehicle is at present delivering cement into the Hull area, a short haul from the cement works, and also into the York area, some 40 miles distant. In York a large capacity silo is being set up to which cement can be delivered when demand from the sites slackens, and from which cement can be drawn by the transporting vehicle for redistribution in York when demand temporarily exceeds the capacity of the vehicle to deliver from Hull.

It is felt by F. Shepherd and Son, Ltd., that the cement manufacturers should take over responsibility for the transport of cement in bulk by the method described, as in Sweden. A logical development would be to set up large silos at suitable centres near a railhead where bulk cement could be delivered by rail, or, alternatively, by river or canal where cement would be delivered in bulk by boat. Cement would then be delivered locally from these silos in the special vehicle. This would enable the vehicle to carry several loads a day with appropriate economy in operation. Another possibility is the use of trailers to carry pressure containers. The compressor on the towing vehicle would then be used to supply the compressed air for its own pressure containers and those on the trailer.

The firm are highly satisfied with the results of this equipment and expect to recover the cost of the special equipment on the vehicle and on the site storage silo in well under a year. Further, it is considered to be a commercial proposition for contractors no matter how cheap cement bags may become in the future.

WORLD'S BIGGEST EXCAVATOR: Illustrated above is the biggest walking dragline excavator in the world, now nearing completion at Corby, Northants. The giant excavator has been built by Ransomes and Rapiers, of Ipswich, for the steel firm, Stewart and Lloyds, at a total cost of about £400,000. It weighs 1,500 tons, would fill a football pitch, and moves in 7-ft. strides. Operated by one man, it will tear 100-ft. strips (as much as 30 tons of earth at a time), exposing an iron ore seam for opencast mining. The excavator was built to save the necessity for sinking a shaft for a particularly deep seam. The 282-ft. boom compares with the 145 ft. high Nelson's Column. Note ordinary-sized excavator at left.

FIBRE BUILDING BOARD

Fixing for Wall Linings

"FIXING Fibre Building Board Wall Linings," No. 17 in the advisory leaflet series issued by the Ministry of Works as "guides to good building," gives hints to the practical man on the handling of insulating board and hardboard.

The leaflet, illustrated with simple diagrams, describes methods of fixing wall linings to timber frames and battens, with various spacings according to size and type of board; how joints, left open to allow for expansion, may be finished off; what nails should be used and how they can be hidden so as not to spoil the appearance.

Advisory leaflets are designed mainly to meet the needs of the small builder, clerk of works, foreman and craftsman, for information in practical and handy form about the results of research and the latest developments in building practice.

Copies of leaflets in the series are obtainable from H.M. Stationery Office, price 2d. each, with reductions for large orders (post orders to P.O. Box No. 569, London, S.E.1).

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THE BUILDING EXHIBITION, 1951

New Products in the Largest Show Ever

WITH 425 stands, the Building Exhibition, which takes place at Olympia from November 14-28, will this year stage the largest show since the exhibition was first introduced in 1895. For the first time all three halls at Olympia—the Grand, the National and the Empire Hall—have been booked to house the display, covering every phase of the building and allied trades excepting furnishing.

Many new products will be seen, and many will embody recent developments while others will demonstrate the latest applications of materials.

TANK SHIPS FOR CEMENT

New Swedish Development

THE LEADING Swedish cement producers, Skanska Cement A.B., have converted two of their ships, Vika I and Vika II, into cement tankers, thus introducing a new form of transporting cement by sea.

These vessels each load 1,800 tons of cement in seven hours by means of fixed conveyors installed in the ships, while unloading with the same devices takes nine hours. Besides cutting the loading time considerably, the whole process requires only two hands, one on board the ship and one ashore.

For unloading in ports lacking silos, the ships are also equipped with bag-filling machines, which automatically fill, weigh and seal the bags, electric conveyors delivering them direct to lorries and railway trucks.

H.

MINISTRY OF LABOUR

Annual Report for 1950

THE annual report for 1950 of the Ministry of Labour and National Service (Cmd. 8338, Stationery Office, 6s.) shows that at the end of November, 1950, the working population was the highest ever attained in peace-time. At the end of the year, total working population was 23,180,000, an increase in 12 months of 218,000. The tendency of the past few years for more women to return to or remain at work continued.

The flow of young persons to employment was still affected by the low birth rate during the 1930s; the effects of the higher birth rate in 1942 onwards will not become apparent until about 1957.

The size of H.M. Forces over the year showed a net increase for the first time since 1945. The strength of the Forces (752,000) at the end of the year represented about three per cent. of the total working population. Under the National Service Acts the total number of men registered was 301,600.

At September 29, 1950, there were 104,420 men whose call-up was deferred. Of the total deferred, 14,650 men were born in the first half of 1932, and of the remainder, 27,000 were born in 1929, 30,720 in 1930 and 32,050 in 1931.

As regards apprentices and those training for a professional qualification, the number of deferments at September 29, 1950, was 142,700. Of these, 33,000 were born in the first half of 1932 and 8,900 in 1929; 43,500 in 1930 and 57,300 in 1931. Deferment was granted to 9,942 students wishing to enter universities, technical colleges, agricultural colleges or similar institutions in October, 1950. In addition, deferment was also granted to 789 graduates to undertake university courses of further study or post-graduate research. During the year, 619 men (about 0.2 per cent. of the total registered under the National Service Acts) were registered provisionally as conscientious objectors.

A chapter is devoted to the various sources from which the labour supply for civil employment was augmented. The total number in civil employment (industry, commerce and civilian services) at the end of the year was 22,100,000, which represented about 95 per cent. of the total working population. By the end of 1950 the number in civil employment had increased by 234,000. The increase in the manufacturing industries amounted to 214,000. The Ministry's records show that the number of women in part-time employment at December, 1950, was approximately 340,000.

With the continued general shortage of labour it became more important that elderly persons should remain in employment and the Ministry continued to encourage employers to retain or engage elderly workers.

Foreign Workers

During the year a further 4,770 foreign workers were brought to this country under the Ministry's official schemes and in addition, 430 Poles from the Middle East were placed in employment in this country. About 35,000 permits were granted to employers for the admission of individual foreigners to enter employment here. The occupational groups and the nationalities of the workers admitted under the permit procedure are shown in the report.

A chapter of the report gives a brief survey of the labour position in various industries and services grouped under the headings: Basic industries, manufacturing industries, and other industries and services. It also sets out the action taken in particular instances to meet the need for additional manpower.

Unemployment during 1950 remained at a low level and the number of registered unemployed persons never exceeded 1.8 per cent. of total employees. An analysis of unemployed at December showed that nearly 60 per cent. of the males were aged 41 years or over and 34 per cent. were aged 21 and under 41. In the case of females the proportion aged 41 or over was 38 per cent.

Services of the Ministry

This part of the report is divided into seven chapters under the headings—employment services, youth employment, resettlement after service in H.M. Forces, training for employment, resettlement of disabled persons, welfare of workpeople and labour statistics.

During the year ended December 20, 1950, a total of 2,951,987 placings were effected by local offices and youth employment offices. This number included 1,731,688 men, 212,617 boys under 18 years, 799,118 women and 208,546 girls under 18 years. At this date the number of notified vacancies unfilled was 347,209. The appointments department, which includes the technical and scientific register, continued to provide a placing and advisory service for employment of a professional, administrative, managerial, technical or scientific character.

The technical and scientific register filled 3,026 vacancies during the year. At December 11, 1950, 5,254 persons were on the register of whom 1,417 were unemployed and 3,837 were seeking a change of employment. At the appointments offices, 15,964 vacancies were notified by employers and 7,658 registrants were placed in employment. At December 11, the number on the register was 21,345 (19,277 men and 2,068 women), of whom 13,573 were in employment but seeking a change.

The youth employment service, which in most areas is operated by local education authorities and in others by local offices of the Ministry, gave vocational guidance to 485,000 school leavers; 215,000 boys and girls were placed in their first situations after leaving school. The total number of boys and girls placed in employment (including those placed in their first situation) was 421,000.

In general, reinstatement in civil employment after service in H.M. Forces proceeded smoothly. Cases in dispute referred to reinstatement committees resulted in 155 orders being made requiring employers to reinstate applicants, or pay compensation, or both. In 125 cases the employer was not held to be in default of his obligation under the Acts concerned. In 11 cases the committee's decision was reversed on appeal to the umpire.

The Interrupted Apprenticeship Scheme continued throughout the year, but it applied only to persons born on or before December 31, 1928, because persons born later were able to obtain deferment of call-up until completion of their apprenticeship. The number of accepted applications for assistance fell to 353 during 1950; the total number accepted since April, 1945, was 82,563. Awards made under the Further Education and Training Scheme during the year numbered 4,757, bringing the total since the inception of the scheme to 149,833.

Early in 1950 an Advisory Council on the Relationship between Employment in the Services and Civilian Life was set up under the chairmanship of Sir Godfrey Ince, G.C.B., K.B.E., Permanent Secretary to the Ministry. Approaches were made to various bodies with a view to securing increased employment opportunities for ex-regular members of H.M. Forces. It was aimed to secure the voluntary adoption of schemes under which an agreed quota of all engagements might be reserved for ex-Regulars insofar as they were available. The position at the end of the year in many groups of industries and services is summarised in the report.

Industrial Relations

Conciliation, Arbitration and Associated Work. About 300 disputes were settled by agreement between the parties at, or following, meetings arranged by conciliation officers of the Ministry and generally held under their chairmanship. The Industrial Court issued 43 awards, bringing the total to 2,228 since the court was established in 1919.

Under the Conditions of Employment and National Arbitration Orders, 1940-1950 ("Order 1305"), the number of cases reported in 1950 was 425. There were 110 cases reported during 1949 that were still in action at the beginning of 1950. Of these 535 cases, 239 were referred to the National Arbitration Tribunal, 10 to machinery established under the Industrial Courts Act and 162 were settled by other means, leaving 124 cases outstanding at the end of the year. The number of cases heard by the National Arbitration Tribunal in 1950 was the largest in any year since it was first instituted. An outline is given in the report as to the steps taken by the Ministry to develop good industrial relations.

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NEWS IN BRIEF

Death of Sir Henry Holloway

We regret to report the death of Sir Henry Holloway, chairman and managing director of Holloway Bros. (London), Ltd. Sir Henry was 75 years of age. He was past-president of the Federation of Civil Engineering Contractors and of the Institute of Builders.

Employment in Building Industry

There was an estimated decline of 5,000 in the total number of persons employed in building and contracting during the month of July, the total at the end of the month being 1,447,000.

Builders Win Golf Match

In a match played at Wentworth Golf Club on September 5 between the London Master Builders' Association Golfing Society and the Royal Institution of Chartered Surveyors' Golfing Society, the builders beat the surveyors by eight matches to seven.

Haulage Rates

In a statement issued on September 11, the National Rates Committee of the Road Haulage Association remark that the increases in running costs since the previous recommendation in May, 1951, have been such that an average increase of 3 per cent. on rates is justified from October 1 next, when the new wages scales for road haulage workers will be in force.

Duodecimal Tables

The Pembroke Publishing Co. have recently published a ready-reckoner entitled Duodecimal Tables. This publication contains tables for the squaring and cubing of feet and inches dimensions. Duodecimals are decimal fractions which have denomination of 12 and successive multiples of 12. Squaring out feet and inches is usually carried out in duodecimals. These tables are intended for architects' staffs, estimators, clerks of works, builders and surveyors.

Farriers Company's New Master

At a Court of Assistance of the Worshipful Company of Farriers held on September 11, Major George Appleton Warley, F.C.A., was installed as Master. Major Warley is the secretary of the National Federation of Demolition Contractors; of the National Federation of Master Steeplejacks and Lightning Conductor Engineers; of the Reinforcement Steel Engineers' Association; and of the Metal Lathing Association, Ltd.

£1m. Liverpool Housing Scheme

The biggest expenditure by the city on any single housing development since the war is contained in the acceptance, subject to confirmation by the City Council, by Liverpool Corporation Housing Committee of a tender by the Unit Construction Co., Ltd., of £1,016,730 for the erection of 672 dwellings, including three-storey blocks of flats, old persons' flats and houses. This is the first step in the housing development at Kirkby, the centre of the city's great industrial estate which lies just outside the city boundaries.

N. Rhodesian Cement Works Opened

The Colonial Development Corporation's new cement works at Chilanga, near Lusaka, Northern Rhodesia, were opened on September 8 by Sir Gilbert Rennie, the Governor of Northern Rhodesia. The output is expected to be sufficient to meet the country's requirements as they were at the time of planning, but its consumption of cement has since trebled, and provision for extension has been made to treble the output in the next few years. Production costs will be about £8 10s. a ton. This is considerably more than was expected, but is considerably cheaper than the imported product.

Higher-Income Groups' Flats

The railway line at Welwyn Garden City has, until recently, divided the area into two distinct zones, the factories and workers' houses on one side and higher-income groups on the other. Homestead Court, which has been built in the south-east corner of the factory area, is the Development Corporation's first step towards introducing a middle-class element into this predominantly working-class population. It comprises a block of 92 flats with restaurant and a lounge. The flats have been designed for higher-income groups and were opened on September 14. The architects for the scheme were Louis de Soissons, A.R.A., and Partners. The total cost is about £200,000.

Dartmoor National Park

The chairman of the National Parks Commission, Sir Patrick Duff, signed the Dartmoor National Park (Designation) Order on August 15. The Order is about to be submitted to the Minister of Local Government and Planning, Mr. Hugh Dalton, for confirmation. The area comprises some 365 square miles, all in Devon. It includes the whole of Dartmoor Forest, the downland country around Roborough, Haytor and Whitchurch, and the townships of Buckfastleigh, Moretonhampstead and Widecombe. A copy of the Order, together with a map showing the boundaries, will shortly be available for inspection in all the local authority districts affected by the Order.

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Australian House-building Difficulties

The Executive Director of the New South Wales Building Congress, Mr. Stewart Fraser, said, on September 12, that the building industry in Australia was rapidly approaching a crisis. The rate of house-building was already slowing down because prospective private builders could not obtain finance. In addition, many customers were cancelling orders for building materials and waiting lists for material were growing smaller, even though the demand for homes had not decreased. The only solution lay in a modification of the Commonwealth Bank's policy, so that larger loans could be granted to private home builders. The decision of the Federal Government to permit higher interest rates on loans to building societies should enable them to resume limited operations.

Conference on Heat Insulation

The proceedings of the conference on heat insulation, held under the auspices of the Joint Committee on Materials and their Testing, in conjunction with the Institution of Gas Engineers, at the Institution of Mechanical Engineers, London, in November, 1950, have now been published. Copies can be obtained from the Secretary of The Institution of Gas Engineers, 17, Grosvenor-crescent, S.W.1, at 13s. 6d. a copy, post free.

Willesden Technical College Prospectus

Middlesex County Council Education Committee have issued the prospectus for 1951-52 session to be held at the Willesden Technical College. This contains information on courses within the department of architecture and building. Full-time and part-time day and evening courses on a wide range of building trade subjects are provided. The prospectus gives details of time-tables and information on admission.

Guide to Further Education

The 1951-52 edition of "Floodlight," the annual guide to Further Education, has recently been published by the London County Council. This booklet contains details of evening classes and day courses together with information on the whole range of vocational and non-vocational studies available at L.C.C. schools and institutes. There are opportunities for Further Study in most aspects of the building professions and trades.

Good Painting of Buildings

As a contribution to the education and training of the painter of to-morrow, I.C.I. has just issued an illustrated manual entitled "Good Painting of Buildings." This booklet provides, among other features, a classification of the many types of paint and of building surface, and examines common painting defects and their remedies. Copies may be obtained from any I.C.I. Sales Office or from I.C.I. Paints Division, Slough, Bucks.

Brecknockshire Training Areas

The Government have now decided that, while the War Office should be allowed to retain the existing artillery range at Sennybridge in Brecknockshire, extending over 29,000 acres, and training areas of some 4,000 acres for both Territorial and Regular Troops at Fforest Fawr and near the Brecon Beacons, there should be no substantial extensions. This follows objections raised at the Public Inquiry held at Brecon. Originally the War Office wanted some 50,000 acres in this area.

Eighty-fourth Annual Report

The eighty-fourth annual report of the Builders' Clerks' Benevolent Institution has been published. This edition contains the newly revised rules of the institution, previous rules having been rescinded, together with names of members of the council and those holding official positions within the organisation. A full list of donors and subscribers is provided.

Master Plan for Pigeons

Hoole (Cheshire) Council Housing and Plans Committee is to recommend the council to allow their tenants to keep pigeons. But the tenants must submit a plan of the pigeon loft and get permission of the council to keep the birds. They must not keep more than 24 birds, and up to four hours' flying time will be allowed every day. Who will check the flying time is not known. Another rule is that birds must not be allowed to perch on housetops or to loiter in neighbouring gardens.

Corrosion of Buried Metals

A new standard form for recording corrosion failures of buried pipes has been prepared by the British Iron and Steel Research Association's sub-committee on the corrosion of buried metals. It is available from Mr. E. E. White, B.I.S.R.A., 140, Battersea Park-road, London, S.W.11, and is to be returned when completed to the Chemical Research Laboratory of the D.S.I.R., Teddington. The sub-committee has taken over from the research co-ordination committee of the Institution of Water Engineers its work on the corrosion of buried pipe lines, and the new form incorporates the changes which the institution's experience has shown to be desirable.

Alkali Inspectors' Annual Report

That better planning of chemical works, good roadways and the setting out of grass lawns and flower beds, have not only produced more attractive conditions for the workpeople, but have made altogether more agreeable the districts in which chemical works are situated, is the view expressed in the annual report for 1950 of the Chief Alkali Inspectors of the Ministry of Local Government and Planning and the Chief Inspector for Scotland (Stationery Office, 1s. 9d.). The inspectors point out that on the whole the chemical industry is in a very healthy state, despite the many difficulties it has had to meet. It has been kept up to date and is in a good position to meet future competition.

CRICKET

Palladians v. Vitruvians

THE VITRUVIANS (an XI drawn from the Press of the building industry) played their last match of the season on September 13, when they drew with Mr. Winton-Lewis's Palladians on the Old Pauline ground at Thames Ditton. Rain held up play till after lunch, but the weather cleared up and there was an exciting finish, the Palladians requiring six runs to win when stumps were drawn. Scores:—

Vitruvians: 100 for 9 wkts. dec. (I. M. Leslie 21, P. D. Eastop 20, J. Phillips 3 wkts. for 24).

Palladians: 95 for 5 wkts. (D. J. Woodley 33, M. Glanville 28, W. D. Bryant 2 wkts. for 17).

Of their four games this season the Vitruvians have drawn three and lost one (to the R.I.B.A. XI, by 7 runs).

WOODWORKERS' WAGES

Demand for "Substantial Increase"

THE Amalgamated Society of Woodworkers, at its annual conference at Margate on September 18, unanimously instructed the executive committee to make an early application for "a substantial wage increase." A resolution asking for a quarterly review of the cost of living for the operation of the sliding scale of wages was carried by a small majority.

Speaking to the conference, MR. DALTON, Minister of Local Government and Planning, gave an assurance that the housing programme would be maintained to the fullest possible extent. The Government, he said, shared the view expressed by the union president that it was priority number two in the building world, next only to defence needs. So far it had not been found necessary to reduce the housing target in any area of England and Wales on account of defence. Local authorities would be safe in building to the full extent, and if they could show capacity to build more houses he would give them the necessary allocations.

PARLIAMENT SQUARE

Ban on Illuminated Signs

THE Minister of Local Government and Planning has upheld the decision made by Westminster City Council, refusing to allow illuminated signs on premises on the Parliament-street and Bridge-street frontages at 34, Parliament-street, Westminster.

An announcement from Westminster City Hall on September 12 said that in April, 1951, the council had received an application for consent, under the Town and Country Planning (Control of Advertisements) Regulations, 1948, to the display of fascia lettering, ranging from 2 ft. 3 in. to 1 ft. 3 in. in height and illuminated by blue fluorescent tubing, on the premises. The council had considered that, because of the situation of the premises, immediately opposite to the Palace of Westminster and Parliament-square, and in proximity to Westminster Abbey and other public buildings, illuminated displays even of fascia lettering should not be allowed. Accordingly, it refused to grant consent.

An appeal against the council's decision had been made, and the Minister, after a hearing by one of his officers, had dismissed the appeal. In a letter announcing the decision it was stated that the Minister thought that the display of the illuminated signs would be completely out of keeping with the character of Parliament-square and the surrounding buildings, and would be prejudicial to the amenity of the square.

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THE BODDY ROOFING COMPANY LIMITED
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Telephone: CANonbury 4281

OFFICIAL NOTIFICATION

Register of Industrial Premises

It was announced by the Board of Trade on July 29 that the Government had decided to create a small organisation under Sir Philip Warter within the Board of Trade, which would be responsible for the establishment of a Control of Factory and Storage Premises in the event of an emergency. This organisation is now the Factory and Storage Premises (Defence Planning) Division.

As one of its first tasks the division is bringing up to date its register of industrial premises, and industrialists throughout the country will shortly be receiving from Board of Trade regional controllers a letter asking them to supply certain basic information about their premises.

By limiting the approach to firms occupying a floor space exceeding 5,000 sq. ft., and omitting those industries which are already heavily committed to the rearmament programme, only about one-third of the industrialists throughout the country will be asked to complete a short questionnaire.

Industry can be assured that the information obtained by the Board of Trade through this appeal will be regarded as strictly confidential and only used for the purposes of the register as an essential part of the country's defence plans.

SMOKE ABATEMENT

Conference at Blackpool

NATIONAL FUEL problems and shortages, from the standpoint of the coal that is wasted in the form of smoke, will be the background of the three-day annual conference of the National Smoke Abatement Society that opens in Blackpool on September 26. Over 400 members and delegates from local authorities, technical bodies, Government Departments, and the fuel and power industries are already listed as attending. One of the outstanding events will be the reading of the second Des Voeux Memorial Lecture. "Power and Waste in their Social Setting" will be the theme of this year's lecturer, Dr. J. Bronowski, who is Director of the Central Research Establishment of the National Coal Board.

Also of special importance will be a session in which representatives of the national coal, gas, electricity, iron and steel, and cement organisations will outline the policies being adopted for progressively preventing air pollution.

The Athlone Fellowship

The first Canadian engineering graduates to receive awards under the new Athlone Fellowship scheme arrived in this country recently. Beginning this year, 38 Athlone Fellowships are to be awarded each year by the Government to enable Canadian engineering graduates to take post-graduate training in the United Kingdom.

TRADE NEWS

Change of Address

Messrs. Jos. F. Ebner, Ltd., as from September 24 will operate from 405, High-street, Stratford, London, E.15 (Tel.: Maryland 6020).

Change of Telephone Number

High Duty Alloys, Ltd., 89, Buckingham-avenue, Slough, Bucks, inform us that their telephone number has been changed from Slough 21201 to Slough 23901. Their telegraphic address remains the same.

Revolving Doors

E. Pollard and Co., Ltd., have recently published a booklet on their revolving doors. It describes the various types of doors manufactured and the various designs used in different applications.

Finnish Plywood Supplies

Supplies of Venesta Finnish birch plywood are now beginning to arrive in this country under the gradings of "Specnot." "Sumnot," "Mornot," etc.

Emergency Lighting

Full details of an automatic emergency lighting apparatus that offers protection against interruptions in the mains supply are contained in a new brochure on the "Keepalite" system recently published by the Chloride Batteries, Ltd., of Clifton Junction, near Manchester.

New Diesel Starting System

A new compressed-air-powered apparatus for starting medium-sized diesel engines has recently been developed by the Hymatic Engineering Co., Ltd., Redditch, Worcs. The system is claimed to be neat in appearance and economical with air, and is considered to have considerable appeal on the score of its cheapness, simplicity and effectiveness.

Electric Tools

Black and Decker, Ltd., of Harmondsworth, Middlesex, have announced three new units in their Handy Utility range of low-priced electric tools. These are a 5-in. sander-polisher, a 6-in. electric saw and a ¼-in drill. A number of additional accessories are also announced and are listed in a new descriptive leaflet covering the entire range.

Bitumen in Building Construction

A booklet emphasising the important part played by bitumen products in every sphere of building construction has been issued by W. Briggs and Sons, Ltd., of Dundee. This publication illustrates some of the schemes in which their products have been used and includes such buildings as the Legislative Assembly Building at New Delhi, The Royal Festival Hall and the recently opened Abbey Steel Works at Margam.

New Protective Material

"Pultac" is a material which is applied to the dry walls of paint spray booths by brush or spray gun as desired, and can be removed at will by simply tearing off, thus eliminating the periodic scraping down usually required to remove paint overspray. Besides the protection it affords against over-spray paint, "Pultac," which is manufactured by the Pyrene Co., Ltd., is resistant to the normal over-spray of thinners. It is claimed to be rust and corrosion resisting, harmless to any surface to which it is applied, and to have an indefinite durability.

Synthetic Resin Glues

Aero Research, Ltd., of Duxford, Cambridge, have just completed a new exhibition room where they have on show a display illustrating the wide range of uses of modern synthetic resin glues, especially for the woodworking industries.

New Woodworking Machines

A number of woodworking machines of new design are being manufactured by F. J. Edwards, Ltd., 359-361, Euston-road, N.W.1. These include three circular-saw benches of various sizes, a bench-type band saw and an overhand planing machine. These new machines are produced and distributed solely by themselves, and further particulars may be obtained from the above address.

Company's Annual Report

George Cohen, Sons and Co., Ltd., have recently published their directors' report and accounts for the year ended March 31, 1951. In a statement to be submitted at the annual general meeting on September 26 next, the chairman states: "The Government should realise that the directors of large and old-established industrial concerns, being fully mindful of their heavy responsibilities, can be relied upon to pursue voluntarily a prudent financial policy; and, further, that omnibus legislation, since it is heedless of the special considerations that apply to particular cases, must often provoke injustice."

THE SCOTTISH BUILDER

NEW BUILDINGS

Glasgow.—Plans to be prepared for Messrs. L. K. MacKenzie and Partners, Ltd., for new buildings to be erected at Balmont-rd. and Lomond-st., Possilpark. The architect is Robert Bruce, 121, West Regent-st., Blythswood, Glasgow, W.C.2.

Glasgow.—Corporation to erect at Liddersdale-rd. a new hotel block and buildings, for which the architect is Archibald J. Jury (F.), Glasgow Cross, The Trongate, Glasgow, E.C.

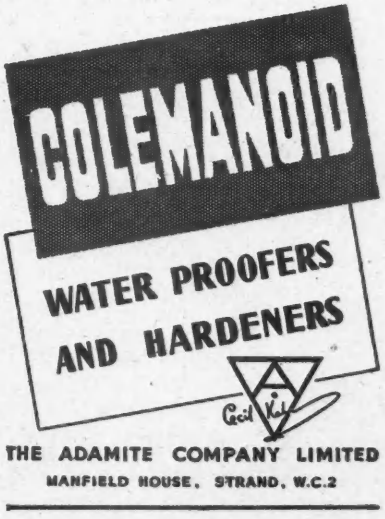
Glasgow.—Corporation to erect a new secondary school at The Westland-dr. for which the architect is John McNab (F.), 129, Bath-st., Blythswood, Glasgow, W.C.2.

Lanarkshire.—Plans in hand for a scheme of houses to be erected by the Corporation of Biggar from designs by their architects.

Lanarkshire.—C.C. to have plans prepared for a new Catholic primary school to be erected on a Calderc ruix site. The architect is William Watt (F.), Albert-rd., Motherwell-Wishaw.

Motherwell-Wishaw.—Plans to be prepared by their own architects for new halls and other offices for the Coltness Iron Co., Ltd., on a New-mains site.

Uddingston.—Plans to be prepared for new office buildings and also a new storage block to be erected on the Glasgow-rd. The architects are Cullen, Lockhead and Brown (F.), 119, Cadzow-st., Hamilton.



FUTURE CONSTRUCTION

PUBLIC APPOINTMENTS

Full details of Public Appointments open will be found in the Advertisement pages of this and previous issues.

CONTRACTS OPEN

For some contracts still open but not included in this list see previous issues. Those with an asterisk are advertised in this number. The dates at the heads of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained.

BUILDING

SEPTEMBER 24.

***†Plymouth T.C.**—48 flats at Whitleigh and seven aged persons' bungalows at Ernesettle. City A., Seymour-rd., Plymouth. Dep. £3 3s. for each scheme.

SEPTEMBER 28.

***†Halifax C.B.**—136 flats at Boothtown. B.E., Crossley-st. Dep. £2 2s.

***Newcastle-upon-Tyne Regional Hospital Board.**—Erection of new pathology dept. as first section of proposed out-patient dept. W. J. Ball, 1, Lonsdale-st., Carlisle.

SEPTEMBER 29.

***†Lincoln (Kesteven) C.C.**—Alterations and additions, police station, Cliff-rd., Stamford. J. W. H. Barnes (F.), County A., Sleaford. Tenders by November 9.

***†Mitcham B.C.**—Community centre at Pollards Hill. B.E. & S., Town Hall. Tenders by October 16.

OCTOBER 1.

***†Cornwall C.C.**—Erection of sec. mod. mixed sch. at Newquay. County A., County Hall, Truro. Dep. £10 10s. Tenders by November 10.

***†Dorset C.C.**—Erection of Westham prim. jun. sch. C., County Hall, Dorchester. Tenders by November 8.

***Litherland U.D.C.**—82 houses and 18 bungalows Netherton Park estate. O. Williams & Sutcliffe, 24, Dale-st., Liverpool.

Long Eaton U.D.C.—36 houses, Petersham-rd. E. & S., Town Hall. Dep. £2 2s.

***†Middlesex C.C.**—8 new schools in various parts of the county. County Architect, 1, Queen Anne's Gate-bldgs., Dartmouth-st., London, S.W.1. Dep. £2 2s. each.

***†Thurrock U.D.C.**—Eight houses, Stanley-rd., Bulpham. C. S. H. Hawkes, E. & S. Dep. £2 2s.

***Thurrock U.D.C.**—10 bungalows, Giffords Cross-rd. housing site, Corringham. C. S. H. Hawkes, E. & S. Dep. £2 2s.

OCTOBER 2.

***Altrincham.**—97 houses and flats at Broomwood estate. B.S., Town Hall. Dep. £2 2s.

Worksop R.D.C.—20 houses, Festival-ave. B. D. Thompson, 83, Bridge-st. Dep. £3 3s.

OCTOBER 3.

***Cheshunt U.D.C.**—Fireplaces and alterations to outbuildings at Airey houses, Goff's Oak. E. and S. Dep. £2.

OCTOBER 5.

***Durham County Police Authority.**—Six standard police houses. G. R. Clayton (F.), Court-la., Durham.

***†Peterborough City.**—50 houses, Mountsteven-ave. estate. F. J. Smith, E. & S. Dep. £2 2s. Tenders by October 26.

Rhayader R.D.C.—(a) Preparation of 12-house site; (b) Erection of 12 houses; (c) Erection of four houses. S. N. Shrimpton and Son, Council's architects, 18, Bridge-st., Knighton, Rads. Dep. £1 1s. each contract.

Strood R.D.C.—Four bungalows and 26 houses at Longfield-rd. E. & S., Council Offices. Dep. £5 5s.

Upton-upon-Severn R.D.C.—28 houses, Kingshill. Pemberton & Bateman, 21, Vine-st., Evesham. Dep. £2 2s.

***Wakefield T.C.**—114 houses at Kettlethorpe estate. Room 33, Town Hall.

OCTOBER 6.

***†Whitby U.D.C.**—32 houses at Helredale-rd. Peacock & Bewlay, 224, Hagley-rd., Edgbaston, Birmingham, 16. Dep. £2 2s.

OCTOBER 8.

***Chester R.D.C.**—12 houses at Barrow. T. C. R. Eaton (A.), 16, White Friars. Dep. £3 3s.

Ellesmere Port U.D.C.—32 bungalows, Faraday-rd. E. and S., Queen-st. Dep. £3 3s.

***†Suffolk and Ipswich Fire Authority.**—Fire appliance room for new station at Debenham. E. J. Symcox (F.), County Hall. Tenders by October 26.

OCTOBER 9.

***Dewsbury C.B.**—Construction of proposed new Thornhill C.E. jun. sch. Boro' A. & Building Surveyor. Town Hall. Dep. £3.

Nottingham T.C.—Construction of junior school Askerby-dr., Strelley estate. R. M. Finch, O.B.E., M.Inst.C.E., E. and S., Guildhall, Nottingham. Dep. £2.

"THE BUILDER" PRICES

COPPER PRICES REDUCED

The Ministry of Materials announces that as from September 13 the price of electrolytic copper will be reduced by £7 to £227 per long ton delivered consumers' works.

This reduction is made possible by the Ministry's decision not to buy copper for the time being at prices exceeding the American f.a.s. export price as quoted in the Engineering and Mining Journal.

Discounts, premiums on special shapes and the limitations on forward purchasing arrangements announced by the Ministry of Supply on May 1 last, remain unaltered.

The Ministry of Materials' buying price for rough copper in slabs of from 2 to 3 cwt. remains unchanged.

SCRAP REDUCTIONS

The Minister of Supply has made an Order making corresponding adjustments in the controlled maximum prices of scrap and unwrought brass as from September 13.

Maximum prices are reduced as follows:

(1) All descriptions of copper scrap by .. £7

(2) 80/20 cupro nickel scrap, all descriptions of gunmetal scrap, and gilding metal scrap by £6

(3) Scrap QF and SAA cases, and brass cuttings, 70/30 cupro nickel scrap; 65/35 and 70/30 casting quality brass ingots, etc.; and 70/30 brass strip ingot for rolling by £5

(4) Brass ingots, etc., to B.S.S. 218 or 249, 63/37 strip ingot for rolling, and brass rod and fuze scrap, brass swarf and heavy brass scrap, by £4

Written contracts made before September 13, which were legal under the earlier Non-Ferrous Metals Prices Orders, are not affected by the new Order, but options exercised or contracts renewed after that day must conform to the prices now announced.

The other provisions of the earlier Orders are unchanged.

The Order—the Non-Ferrous Metals Prices (No. 7) Order, S.I., 1951, No. 1650—is obtainable from the Stationery Office.

BRASS AND COPPER TUBES

THE Brass and Copper Tube Association state that in consequence of the reduction in the price of copper, announced above, basis prices of tubes are reduced as from September 13 as follows:—

	Reduced by	*Basis Price*
Copper tubes	¾d. =	26d. per lb.
Brass tubes	¼d. =	25d. "
Copper-nickel tubes 70/30	¼d. =	33¼d. "
Other alloys	Prices on application	

The list prices of condenser ferrules are also reduced as follows:—

	Reduced by
Brass and aluminium brass ferrules ..	¼d. per lb.
Copper-nickel ferrules 70/30	¼d. per lb.

SANITARY FIRECLAY WARE

Following an application by the Trade Association, the Minister of Works has authorised from September 12 an increase of 2½ per cent. in the maximum prices of sinks, wash tubs, tub and sink sets, standard lavatories and overlape, 45 lb. Standard closets and drainage channels and foot baths. The price of all other ware (including heavy lavatories, urinals, school closets and hospital specialities) remain unchanged. The increase (states the Ministry of Works) is wholly accounted for by increases in manufacturing costs.

OCTOBER 10.

***Bromley B.C.**—Erection of two classrooms at Nightingale-la. B.E., Municipal Offices. Dep. £2 2s.

***†Burton-upon-Trent C.B.**—2nd instalment of Hillside sec. mod. sch. B.S. Dep. £3 3s. Tenders by November 17.

***†Lincoln C.C.**—Building works at Grantham Tech. College. County A., County Offices, Sleaford. Tenders by November 9

***†Lincoln (Kesteven) C.C.**—Heating and electrical services in connection with alterations and additions, police station, Cliff-rd., Stamford. J. W. H. Barnes (F.), County A., Sleaford. Tenders by November 9.

***Melton Mowbray U.D.C.**—20 houses, Dorothy-ave. site. P. B. Sutton, E. & S. Dep. £2 2s.

OCTOBER 11.

Norton R.D.C.—Six houses, Settrington. R. W. Clayton. R.D.C. Offices, Welham-rd. Dep. £2 2s.

Worcester T.C.—R.C. pumping station, Dines Green estate. E. and S. 22, Bridge-st., Worcester. Dep. £3 3s.

OCTOBER 12.

Ashton-under-Lyne B.C.—Alterations at Fire Station, Wellington-rd. A. T. Kemp, Municipal Offices. Dep. £3 3s.

***Bridlington Boro'.**—12 flats, Elma-ave. B.E. & S. Dep. £5 5s.

***Maidenhead Boro'.**—Conveniences, Braywick-rd. cemetery. B.E. & S., 14, Craufurd Rise. Dep. £2.

OCTOBER 15.

***Babington Boro'.**—40 houses, Mill Park estate. B.E. & S. Dep. £2 2s.

Salford T.C.—Public convenience, Mandley Park, Higher Broughton. City E., Town Hall, Salford, 3. Dep. £1 1s.

OCTOBER 16.

***Huddersfield C.B.**—Various trades in connection with building work at Greenhead High School. Education Architect, Education Offices, Rameden-st.

***Leeds T.C.**—Erection of hostel at Scott Hall-rd. City A., Priestley-hse., Quarry Hill. Dep. £2 2s.

***Thurrock U.D.C.**—Proposed branch library at Blackshots-la. E. & S., Council Offices, Palmer's-ave. Dep. £2 2s.

***Thurrock U.D.C.**—Reconstruction of public library at Civic-sq. E. Fincham (A.), 9, Palmer's-ave., Grays. Dep. £2 2s.

OCTOBER 19.

***Brighouse B.C.**—Houses and flats at two sites. B.E. & S., Commercial-st.

***†West Sussex C.C.**—Erection of new prim. sch. at Shoreham-by-Sea. County A., County Hall.

OCTOBER 20.

***St. Helens C.B.**—60 dwellings, Derbyshire Hill housing estate (Ashtons Green site). M. Ward, B.E. Dep. £2 2s.

***St. Helens C.B.**—50 dwellings, East Lancashire-rd. estate (Broad-la. section), Carr Mill. M. Ward, B.E. Dep. £2 2s.

***Stretford B.C.**—20 houses and 20 outbuildings at Radstock-rd. housing site. B.S., Town Hall. Dep. £2 2s.

OCTOBER 22.

***Brentford and Chiswick B.C.**—24 flats at Edensorgdns. B.E. & S., Town Hall. Dep. £5 5s.

OCTOBER 29.

***Brentford and Chiswick B.C.**—55 flats at St. Thomas', Chiswick. B.E. & S., Town Hall. Dep. £5 5s.

***Northampton C.B.**—Children's home, Sunnyside, Harborough-rd. Boro' A. Dep. £2 2s.

***Northampton C.B.**—76 flats and bungalows at King's Heath. Boro' A., Guildhall. Dep. £2 2s.

NOVEMBER 2.

***North Riding Ed. Com.**—Erection of county prim. sch. at Loftus. J. Breskwell (A.), 7, La Motte-st. St. Helier, Jersey, Channel Islands.

NO DATE.

***Holywell U.D.C.**—38 houses at Greenfield. F. C. Roberts, Council's A., Earl-chbrs., Mold. Dep. £3 3s.

***Midhurst R.D.C.**—8 cottages and 4 flats. T. Greenfield, F.R.I.B.A., "Newstead," Midhurst, Sussex. Dep. £1 1s.

***†North-East Metropolitan Regional Hospital Board.**—Adaptations to seven wards at Eastern Hospital. Secretary, 11a, Portland-pl., London, W.1.

***Ongar R.D.C.**—22 houses on the Shelley estate. E. & S., Bowes Field, High-st., Chipping Ongar, Essex. Dep. £2 2s.

PAINTING, ELECTRIC LIGHTING, MATERIALS, ETC.

SEPTEMBER 29.

***Taunton Boro'.**—Builder's materials. H. G. Cox, Housing Maintenance Superintendent.

OCTOBER 12.

***St. Albans T.C.**—Painting. E. & S., 16, St. Peter's-st.

ROADS, SEWERAGE AND WATER WORKS

OCTOBER 8.

Yeovil B.C.—Roads and sewers at Larkhill housing estate. B.S., Municipal Offices.

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OCTOBER 10.

Huntingdon R.D.C.—Water main extension. Pick, Everard, Keay & Gimson, 6, Millstone-la., Leicester. Dep. £2 2s.

OCTOBER 12.

Twickenham B.C.—Resurfacing of St. Margaret's-rd. between Broadway-ave. and borough boundary A. S. Knolles, B.Sc., M.Inst.C.E., Boro' E., Municipal Offices. Dep. £2.

West Bromwich C.B.—Road and sewerage works. B.E. & S., Town Hall. Dep. £1 1s.

OCTOBER 13.

***Watford R.D.C.**—Construction of roads, etc., at Tibbs Hill. C., Council Offices, Wynyard-hse., Langley-rd. Dep. £1 1s

OCTOBER 15.

Derby C.B.—R.C. service reservoir (3 million gallons capacity). W.E., 1, Tenant-st., Derby. Dep. £5 5s.

GENERAL BUILDING WORK

(LONDON)

Brentwood.—CHURCH.—R.C. diocesan authorities are to consider plans for £20,000 church at L.C.C. Hainault housing estate.

Bromley.—SHOPS.—The Kentish Times, Ltd., have obtained town planning permission to build three shops, with office above, at 12-18, High-st. Architect is O. E. Steer, A.R.I.B.A., 16, Clarence-rd., Sidcup.

Chingford.—HOUSES.—B.C. propose compulsory acquisition of 28 acres of land for erection of 200 houses.

(PROVINCIAL)

Accrington.—Six shops with flats over at Fern Gore estate.

Acorington.—T.C. to erect 48 flats at Dunnyshop estate.

Barnard Castle.—R.D.C. to build 40 houses. Architect is J. Lawton, Council Offices, Barnard Castle, Durham.

Belper.—R.D.C. propose 10 houses at Allestree, 10 at South Wingfield, and six at Quardon.

Billingham-on-Tees.—I.C.I., Ltd., to extend offices at Nylon Works and also to erect canteen for 424 people.

Bilston.—Stewarts & Lloyds, Ltd., propose large extensions to factory.

Birkenhead.—Housing Com. have recommended the Boro' A. to prepare plans for erection of 76 houses on sites at Grangefield, Fairfield-rd., Ovigey-st., and the Priory.

Blackburn.—Manchester Regional Hospital Board approved alterations to wards and pathology laboratory at Royal Infirmary. Est. cost, £12,995.

Blackpool.—T.C. to erect 52 houses at Tyrone-av. Architects are Fairbrother, Hall & Hedges, Blackpool.

Blackpool.—B.C. to prepare scheme for 10 shops with flats over at Mereside estate.

Bodmin.—T.C. house-building allocation for 1952 is 12 Cornish Unit houses, 12 traditional houses, and six private enterprise houses.

Bolton.—B.C. to acquire Tonge Fold Farm and five acres adjacent to Bury-rd. for erection of houses.

Brighton.—Housing Com. to build 65 houses at North Brighton estate and 63 flats at Bates Nursery site. Est. cost, £169,000.

Burnley.—T.C. propose nursery school at Whittlefield area.

Burton-on-Trent.—New factory extension at Wellington-st., for Hodgson & Hodgson. Architects are W. V. Betts & Son, Nottingham.

Cannock.—Wolverhampton & Dudley Breweries, Ltd., propose modernising "Four Crosses Inn."

Chapel-en-le-Frith.—R.D.C. seek loan of £12,425 for bungalows at Park-rd. site.

Chepstow.—Plan for U.D.C.'s new housing estate at St. Tecla providing for 128 houses has been approved by Council Works and Housing Com.

Cheshire.—C.C. seek permission to proceed with 1st, 2nd and 3rd floor schemes of New County Offices and reinstatement of ground floor.

Coventry.—Bretts Stamping Co., Ltd., propose additions to works at Harnall-la. East.

Cumberland.—A site is to be purchased by C.C. at Keswick for two police houses.—C.C. is to erect four staff houses at Valley Housing estate at Whitehaven. Plans by County A.—C.C. to spend £221,587 on erection of Workington Grammar Sch, and £12,712 on erection of central kitchen at Whitehaven.

Cumberland.—C.C. to erect sec. sch. at Maryport. County A., J. H. Haughan, Portland-sq., Carlisle.

Darlington.—The Corporation Development Com. has approved an outline plan submitted by Delanope, Ltd., Fawcett-st., York, for the development of Skerne Park estate by erection of 440 houses, 12 shops and public-house.—T.C. has approved plans for 30 houses at Firth Moor estate for the Housing Com.; and eight cottages at Harris-st., for the North-Eastern Railway Homes and Benefit Fund.

Darlington.—E.C. received sanction to borrow £232,284 for erection of Hummersknott High sch.

Dudley.—Worcs E.C. propose gymnasium, adaptations, etc., at Dudley and Staffs Technical College. Est. cost, £69,000.

Dundalk.—U.D.C. have approved plans for rebuilding the town hall.

Easington.—R.D.C. to erect 18 houses at Murton, 12 at South Hetton and 14 at Wingate.

Festiniog.—U.D.C. propose to erect 59 houses.

Architect is M. T. Pritchard, 12, High-st., Blaenau Festiniog.

Hartlepool.—Boro' E., R. H. Snowball, has prepared plans for 10 shops and 11 houses at West View, for T.C. Quantity surveyors are Hall & Stafford, Sunniside-chbrs., Sunderland.

Haslingden.—B.C. propose four houses at Helmshore-rd. and two at Meadows-av.

Heanor.—U.D.C. seek approval for housing site off Alldreds-la., Langley.

Hexham.—W. Dixon & Son, 1, Collingwood-st., Newcastle-on-Tyne, have been asked to prepare plans for 22 houses at Ovington, for R.D.C.

Leamington Spa.—B.C. to prepare quantities for 41 houses at Stud Farm, 18 at Whitnash and block of flats at Tachbrook-rd.

Liverpool.—E.C. propose new County prim. sch. at Broadgreen-rd.

Liverpool.—Regional Hospital Board to appoint E. Griffiths & Sons, Kinders, Allport-rd., Bromborough, as consultant engineers for west block scheme at Aintree Hospital.

Lloyn.—R.D.C. to erect 10 houses at Mynytho.

Manchester.—Three-storey extension at Woodward-st., Ancoats, for Associated Technical Manufacturers, Ltd. Architect is G. Bullimore, Stockport.

Nailsworth.—U.D.C. to build 14 houses in 1952 housing programme.

Newcastle-on-Tyne.—C. S. Errington, 46, Grainger-st., Newcastle, is architect for proposed alterations at 99-105, Northumberland-st., for Davis & Frost.—The United Newcastle Hospitals, Royal Victoria Infirmary, Newcastle, are to convert No. 4, Claremont-pl. into a nurses' hostel.

Newcastle-on-Tyne.—Co-op. Society to make alterations to their factory and warehouse at Challen-st. Plans by C.W.S. Architects' Dept., 90, Westmoreland-rd., Newcastle.

Northants.—E.C. propose County prim. sch. at Weston Favell.

North Devon.—Local authorities have been allocated 289 council houses in 1952 programme. Distribution is 56 for Barnstaple B.C. 45 Barnstaple R.D.C.; 48 Bideford B.C.; 10 Bideford R.D.C.; 24 Ilfracombe; 4 Lynton; 26 Northam; 12 South Molton B.C.; 18 South Molton R.D.C.; 24 Torrington B.C.; and 22 Torrington R.D.C.

Nottingham.—New female ward block at Ramson Sanatorium. Architects are Bromley & Cartwright, 6, Clarendon-st., Nottingham.

Padiham.—U.D.C. approved in principle erection of 100 houses for key workers.

Pershore.—Worcs. C.C. propose horticultural institute. Est. cost, £227,000.

Radcliffe.—B.C. seek loan of £52,821 for 48 houses at Wood-av.

Salford.—New grammar sch. at Claremont to commence in 1952. Architects are Taylor & Young, Manchester (£250,000).

Scarborough.—T.C. received sanction to borrow £12,682 for erection of 10 houses at Wreyfield-dr.

Sheffield.—T.C. propose children's home at Stradbroke estate.

Sligo.—Corporation approved layout and sketch plans for 16 bungalows at Circular-rd. Plans by State Officials' Housing Society.

Smethwick.—B.C. approved plans for 14 dwellings at South-rd. and Broomfield-rd. and 16 dwellings at Wellington-st. and Foundry-la.

Somerset.—Ministry housing allocations in Somerset for 1952 are as follows: Clutton Rural, 18 council houses, 12 private enterprise; Keynsham Urban, 56, 14; Frome Urban, 30, 8; Frome Rural, 28, 7; Norton Radstock Urban, 50, 13; Axbridge Rural, 60, 15; Glastonbury Borough, 32, 8; Shepton Mallet Urban, 32, 8; Shepton Mallet Rural, 38, 10; Street Urban, 32, 8; Wells Borough, 32, 8; Wells Rural, 36, 9; Crewkerne Urban, 20, 5; Wincanton Rural, 76, 19; Yeovil Borough, 100, 25; Yeovil Rural, 68, 17; Bridgwater Borough, 148, 37; Bridgwater Rural, 56, 14; Chard Borough, 30, 8; Chard Rural, 48, 12; Ilminster Urban, 32, 8; Langport Rural, 48, 12; Taunton Borough, 100, 25; Taunton Rural, 36, 9; Dulverton, 12, 3; Minehead Urban, 10, 15; Watchet Urban, 8, 2; Wellington Urban, 20; Wellington Rural, 13, 4; Williton Rural, 40, 10.

Southwell.—Notts C.C. approved layout plans submitted by R.D.C. for six houses to be erected at Kelham.

Stalybridge.—Bridge Colour Co., Ltd., propose extensions to works. Architects are W. A. Dew & Partners, Market-chbrs., Hyde.

Stalybridge.—B.C. propose extensions to Hague Steps site. Architects are Howard & Benson, 88, Mosley-st., Manchester.

Stockport.—B.C. to prepare amended plans for central propagation centre at Vernon Park.

Stockport.—B.C. propose 50 houses at Brinnington estate, and 34 houses at junction of Nelstrop-rd. and Cornforth-rd. Est. cost, £47,775.

B.C. approved plans for:—Extensions to offices at Bramhall Moor-la., for Mirrlees, Bickerton & Day, Ltd.; 10 shops at Stockport-rd., for R. R. & J. Willan; engineering workshops adjacent Applestone-st., for Thos. Storey (Engineers), Ltd.; two-storey extension, "The Woodlands," Woodlands-dr., for sec. control room and offices, for N.W.E.B.

Stockton-on-Tees. — F. W. Turnbull, White House, Carlton, has prepared plans for six houses at Grange-av., for Marsh (Builders), Ltd., Bishopton-rd., Stockton.

Sunderland.—Corporation propose erection of stadium to cost £30,000.

Swansea.—Planning permission granted by Corporation Highways Com. for erection of six shops at town centre.

Tipton.—T.C. prepared plans for housing scheme at Park-la. West estate.

Tynemouth.—Corporation propose to build block of multiple storey flats. Architects are Tasker & Child, Trinity-bldgs., New Bridge-st., Newcastle.

Wallsend.—The North Eastern Marine Engineering Co., Ltd., have had plans approved for erection of workshop at their works.

Wallsend.—Parsons Marine Steam Turbine Co., Ltd., are to build prefabricating shop at their works.

West Bromwich.—Metal Closures, Ltd., propose factory at Lyttelton Hall estate.

TENDERS

* Denotes *accepted*.
† Denotes *provisionally accepted*.
‡ Denotes *recommended for acceptance*.
§ Denotes *accepted subject to modification*.
¶ Denotes *accepted by H.M. Government Departments*.

Accrington.—54 houses at Dunnyshop site, for T.C.: *Unity Structures, Ltd., London, £74,919.

Biddulph.—110 houses at Park-la. estate, for U.D.C. Architect, W. J. Venables, Congleton: *J. Gerrard & Sons, Ltd., Swinton, Manchester. £158,759.

Billingham-on-Tees.—Erection of store, 180 ft. by 96 ft., at North Gate, for I.C.I., Ltd.: *Direct Labour.

Billingham-on-Tees. — Erection of warehouse, 165 ft. by 135 ft., at Nylon Works, for I.C.I., Ltd.: *G. Wimpey & Co., Ltd., Orchard-hse., Jesmond, Newcastle-on-Tyne.

Birmingham.—Houses for T.C.:—100 and 120 flats at Staplehall Farm estate, and 80 flats and 122 houses at Bangham Pit Farm estate: *Wates, Ltd., London, £460,778.

Blackpool.—52 houses at Ardmore-rd. and Headfort-cl., Knowle estate, for T.C.: *R. Fielding & Son, Ltd., Stanhope-rd. Works, Blackpool, £62,000.

Blaydon.—Site clearance and preliminary works, for new Stella North B.E.A. power station: *Sir Robert McAlpine & Son (Newcastle), Ltd., Starbldgs., Newcastle-on-Tyne.

Burton-on-Trent.—Further 14 houses at Manners estate: *Geo. Wimpey & Co., Ltd., London.

Chigwell.—Eight flats, Roding Valley, for U.D.C. Tooley & Foster, architects, Midland Bank-chbrs., Buckhurst Hill, and quantities by Thurgood, Son & Chidgey:—

Field-Davis, Ltd., Norfolk-rd., Barking, Essex	£15,145
Douglas Grant & Partners, 62, Finsbury Pavement, E.C.2	14,987

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Building Estates, Ltd., Broadmead-rd., Woodford Green £14,864

Roy W. King (Builders), Ltd., South Woodford, E.18 13,905

***Frank M. Miles, Ltd., Manor-rd., Chigwell**...13,515

Derby.—Extensions to factory at Derby-rd., Melbourne, for Melbourne Engineering Co., Ltd.: *Ford & Weston, Ltd., Osmaston-rd., Derby.

Ealing.—Erection of new wing to Old People's Home, for Ealing Eventide Homes, Ltd. Plans by Alan W. Pipe & Sons, 8, Queen-st., Cheapside, E.C.4:—

Yates (Bow), Ltd.	£17,883
F. Troy & Co., Ltd....	17,875
Falkus Bros., Ltd.	17,144
Hoad & Son, Ltd.	16,543
Powis, Limited	16,096
George Moss (London), Ltd.	15,253
*G. Holland & Sons, Ltd.	14,850

Easington.—Eight houses at Blackhall, for R.D.C.: *Direct Labour.

Glasgow.—Demolitions, alterations and erections at 78 to 92, Parliamentary-rd., Dennistoun. *John A. Russell, Ltd., Church Works, Cromwell-st., Maryhill-rd., Glasgow, N.W.

Glasgow.—Alterations and additions on the Stow College of Engineering and Allied Trades Annexe at Cathedral-st. John MacNab (F.), architect, 129, Bath-st., Blythswood, Glasgow, W.C.2. *Morris and Spottiswood, Ltd., Glasgow, £16,995.

Glasgow.—Erection of St. Bernard's School. John MacNab (F.), architect, 129, Bath-st., Blythswood, Glasgow, W.C.2. *The Pentland Trading Co., Ltd., £15,018.

Glasgow.—Erection of new primary school at No. 8 site, Milton. John MacNab (F.), architect, 129, Bath-st., Blythswood, Glasgow, W.C.2. Excavation, brick building and allied work, Thomas Stewart, Ltd., £54,751. (Other contracts let.)

Gosport.—Eight houses at Rowner estate, for T.C.: *Hawkins Bros., £18,794.

Gosport.—10 houses at Rowner and six houses at Avenue-rd., for B.C.: *Hawkins Bros., £20,782.

Gosport.—14 houses at Rowner, for B.C.: *John Hunt, Ltd., £17,809.

Halesowen.—Houses at Fatherless Barn estate, for T.C.: *Shaw Bros., Ltd., £21,963 (16) and *C. Birkes, Belle Vale, £28,894 (21).

Huddersfield.—134 dwellings at Fernside-av., for T.C.: *J. Laing & Son, Ltd., London.

Isle of Cumbrae.—Burgh of Millport housing scheme for the Buteshire C.C. Robert Rennie, architect, 112, Hamilton-st., Saltcoats, Ayrshire. Excavation, brick building and allied work, *William Faulds, Millport; joinery carpentry and allied works, *Dudler and Sons, Saltcoats. (Other contracts let.)

Leicester.—400 houses at Eyres Monsell estate, for T.C.: *J. Laing & Son, Ltd., London.

London.—Demolition of Doulton Buildings, Albert Embankment, for Taylor Woodrow, Ltd., the present owners: *Downham Demolition Co., Haggerston.

¶London (Admiralty).—Particulars of contracts placed by Civil Engineers-in-Chief's Dept., Admiralty:

Minworth: erection of boundary fence, Boulton and Paul, Ltd., Norwich, Norfolk.

Eastney: mastic roofing and flooring to various buildings, Ragusa Asphalte Paving Co., Ltd., 82, Queens-rd., Brighton.

Portsmouth: asphalting roofs, and floors of various buildings, The Neuchatel Asphalte Co., Ltd., 26, Landport-ter., Southsea.

Portsmouth: resurfacing parade ground and roads, Allweather Mechanical Grouting Co., Ltd., 47, Victoria-st., London, S.W.1.

¶London (Air Ministry).—List of contracts to value of £500 or over placed by Directorate of Contracts for week ended September 15:—

Building work: Henry Boot & Sons, Ltd., Sheffield; Haymills (Ctrs.), Ltd., London, W.5; G. E. Wallis & Sons, Ltd., London, W.C.2; B. Pumfrey, Ltd., Gainsborough, Lincs; R. M. Phillips & Son, Ltd., Brigg; Higgs & Hill, Ltd., London, S.W.8; J. Longley & Co., Ltd., Crawley, Sussex; Thos. Lowe & Sons, Ltd., London, W.5; W. E. Chivers & Sons, Ltd., Devizes, Wilts; J. B. Edwards & Co. (Whyteleafe), Ltd., Kenley, Surrey.

Hutting: G. & J. Seddon, Ltd., Little Hulton, near Bolton. *Resurfacing work*: Wirksworth Quarries, Ltd., London, N.1; Neuchatel Asphalte Co., Ltd., London, S.W.1; Tarmac, Ltd., Wolverhampton; Val de Travers Asphalte Paving Co., Ltd., London, E.C.4. *Agricultural maintenance work*: Turfsoil, Ltd., London, S.E.10.

¶London (M.O.W.).—Contracts placed by M.O.W. during week ended September 1:—

Berkshire: M/S Residential Site, Fitzharris estate, Bath-st., Abingdon, Ext. decorations, J. Startfull & Sons, 45, Berrans-av., Kinson, Bournemouth. *Gloucestershire*: Frenchay Hospital, Bristol, Erection of new operating theatre, Stone & Co. (Bristol), Ltd., Redland-rd., Bristol. *Nottinghamshire*: Rampton Hospital, nr. Retford, Interior and exterior painting, T. G. Saxton, Vale-rd., Mansfield Woodhouse. *Oxfordshire*: N.A.B., Polish Housing estate, Checkendon, Alterations to lavatory block, J. Smallbone & Sons, Ltd., Streatley-on-Thames, Reading.

Somerset: Tele. Ex., North-parade, Frome, Repairs to walls and ext. and int. painting, Hodder & Sons, 46, Broadway, Frome. *Wiltshire*: C.D.E.E., Porton, Erection of sampling chamber, E. R. Burgess, Ltd., Oak Works, Augustine-rd., Southampton. *Yorkshire*: N.D.H.C. Industrial Hostel, Gilla., Barnoldswick, Interior decorations, J. Sunderland & Sons, Cook-la., Keighley.

¶**London (War Dept.).**—Works contracts placed by W.D. during week ended September 8:—
West Lothian: Central heating, Taylor & Fraser, Ltd., Glasgow. *Salop*: Miscellaneous, Ernest M. Minshall, Ltd., Market Drayton. *Leicestershire*: Building work, T. Denham & Sons, Melton Mowbray. *Nottinghamshire*: Structural steelwork, Rubery Owen & Co., Ltd., Darlaston. *Cumberland*: Building work, Gordon Durham & Co., Ltd., Workington. *Derbyshire*: Structural steelwork, Hudson Brown, Ltd., Oldbury. *Northumberland*: Road work, Tarslag, Ltd., Stockton-on-Tees. *Yorkshire*: Miscellaneous, F. Shepherd & Son, Ltd., York. *Kent*: Roadwork, W. H. Benstead & Son, Contractors, Ltd., Maidstone.
Sussex: Roadwork, W. & J. G'ossop, Ltd., London, W.6. *Essex*: Painting, D. Humberstone & Co., Ltd., Louth. *Oxon*: Electrical work, Berkeley Electrical Co., London, S.W.1. *Dorsetshire*: Roofing work, H. Hoskings, Ltd., Tangport.
March.—24 flats at Badgeney-Deerfield estate, for U.D.C.: *Drury & Co., Ltd., Leicester, £27,935.
Monmouth.—20 houses at Dingestow, for R.D.C. J. H. Heraves, L.R.I.B.A., 65, High-st., Newport, and quantities by L. C. Patterson, A.R.I.C.S., 11, Cathedral-rd., Cardiff:—
S. J. Kear & Son, Ltd., Broadwell, Coleford, Glos £47,857
Davies Jones & Clinch, Ltd., Raglan, Monmouth 46,931
Ashmores (Glos), Ltd., 10, Westgate-st., Gloucester 43,695
†J. N. Williams & Sons, Ellwood, Coleford, Glos 40,297
Newcastle-on-Tyne.—Erection of 53 houses and 34 flats at Fairways estate (section "B"), for T.C. City Architect, George Kenyon: *Cussins, Ltd., Moor Court, Newcastle-on-Tyne.
North Riding.—County prim. sch. at Romanby, for Ed. Com.: *D. Oakley, Ltd., Northallerton, £25,700.
Scarborough.—66 houses at Eastfield site, for T.C.: *Ernest Hunter (Scarborough), Ltd. (28); and *Charles Coates, Ltd. (38).
Sheffield.—Rebuilding St. Andrew's Presbyterian Church, for P.C.: *G. H. Gillam & Sons, Ltd., Harland-rd., Sheffield.
Southend-on-Sea.—Reinforced concrete garage, for T.C. Plans by R. G. Baxter, O.B.E., M.A., M.I.C.E., F.R.I.C.S., M.I.Mun.E.: *Maycrete, Ltd., Parliament Mansions, Abbey Orchard-st., Westminster, London, S.W.1, £55,785.
Stockport.—15 flats at Brinnington-rd., for B.C.: *Vessey Bros. (Contractors), Ltd., £25,307; and 94 houses and four flats, Brinnington: *Senior Building Co., Ltd., Cheadle, £127,302.
Stourbridge.—Six houses at Heath Farm-rd., for Worcs C.C.: *F. Tildesley & Sons, Ltd., Blackheath, £10,112.
Stretford.—Public slipper baths at Northumberland-rd., for T.C.: *Peter Hodkinson, Ltd., Devonshire-st., Ardwick, Manchester 12.
Sunderland.—Erection of residential hostel for old people at Thorney Close estate, Boro' A., H. C. Bishop: *A. V. Clerey & Sons, 14, Frederick-st., Sunderland, £27,099.
Sunderland.—Erection of five shops and flats at junction of Hylton-la. and Holborn-rd., for T.C. Boro' A., H. C. Bishop, Grange-hse., Stockton-rd., Sunderland: *J. Prentice, Leeds-st., Fulwell, Sunderland, £21,367.
Worksop.—12 houses and eight bungalows at Harworth, for R.D.C.: *Dernie & Bell, Ltd., Worksop, £27,461.
York.—420 houses for corporation: *F. Bilton, Ltd., York and Hull, £571,992 (subject to M.L.G. & P. approval).

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